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house Canadians

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# HOUSING RESEARCH

# RECHERCHE EN LOGEMENT

Volume 1  
Number 1  
1994







**HOUSING  
RESEARCH**

**RECHERCHE  
EN LOGEMENT**

Volume 1  
Number 1  
1994





## INTRODUCTION/INTRODUCTION

Under Part IX of the National Housing Act the Government of Canada provides funds to Canada Mortgage and Housing Corporation to conduct research into the social, economic and technical aspects of housing and related fields.

*Housing Research* is compiled and produced on a quarterly basis by the Canadian Housing Information Centre. This publication provides information and access to research which is undertaken and sponsored by the Corporation.

The publication contains information on completed research reports, new publications, videos and bibliographies, as well as ongoing research projects. An alphabetical title index of items listed is included at the end for quick reference.

"Ongoing Projects" refer to research projects which are currently underway. No reports are yet available. Once the project is completed, and a report is available for distribution, it will be listed in *Housing Research* under the "Completed Reports" area with a full bibliographic citation and abstract. The "Ongoing Projects" sections of *Housing Research* contain the following information:

**Title:**

Title of the project, which may not necessarily be the same as the final report.

**Objective:**

Gives a brief description of the project.

**Division:**

Division within CMHC which is managing the project.

**Contractor:**

Individual or firm undertaking the research.

**CIDN:**

Contract Identification Number

**Central Registry:**

File number to be used to store correspondence between CMHC and the contractor.

En vertu de la Partie IX de la loi nationale sur l'habitation le gouvernement du Canada fournit des fonds à la Société canadienne d'hypothèques et de logement pour la recherche sur les aspects sociaux, économiques et techniques du logement et des domaines connexes.

*Recherche en logement* est produit chaque trimestre par le Centre canadien de documentation sur l'habitation. Il contient des renseignements sur la recherche entreprise et subventionnée par la Société.

La publication présente des renseignements sur les rapports de recherche, les nouvelles publications, les vidéos et les bibliographies, ainsi que sur les projets de recherche en cours. Une liste alphabétique par titres, facile à consulter, se trouve à la fin de l'ouvrage.

Tous les projets non terminés, n'ayant pas encore fait l'objet d'un rapport sont des «projets en cours». Une fois qu'il sera terminé, publié et disponible, le rapport figurera dans la publication *Recherche en logement* sous la rubrique «Rapports terminés» avec références bibliographiques et sommaire. Les sections «Projets en cours» de *Recherche en logement* contiennent les renseignements suivants :

**Titre :**

Titre du projet, qui n'est pas nécessairement le même que celui du rapport final.

**Objectif :**

Brève description du projet.

**Division :**

Division de la SCHL chargée de gérer le projet.

**Contractant :**

Personne ou firme chargée de la recherche.

**NIC :**

Numéro d'identification du contrat.

**Numéro de la gestion des documents :**

Numéro de dossier, sous lequel sera classée la correspondance entre la SCHL et la partie contractante.





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## ÉTUDE SUR LA TRANSMISSION INDIRECTE DU SON DANS LES CONSTRUCTIONS À OSSATURE DE BOIS.

*Préparé par T.R.T. Nightingale. Ottawa : Division de l'innovation dans l'habitation, Société canadienne d'hypothèques et de logement, 1993.*

L'isolement acoustique net entre deux pièces données est fonction de toutes les voies de propagation du son. Dans les logements collectifs, les voies les plus évidentes - et importantes - empruntent habituellement le mur mitoyen ou le plancher séparant deux pièces contiguës. Par ailleurs, le son en emprunte également d'autres que l'on appelle voies de transmission indirecte. Il arrive souvent que la transmission sonore par ces voies réduise considérablement l'isolement acoustique entre deux maisons. La transmission indirecte peut être accentuée par une conception ou une construction mal exécutée. L'objet premier de l'étude consistait à fabriquer un dispositif de mesure de la transmission indirecte et à la mesurer. Cet objectif-là a été atteint. Les méthodes d'essai ont servi à étudier la transmission indirecte causée par un défaut de construction spécifique. L'étude livre les résultats suivants :

- Les cloisons des constructions à ossature de bois peuvent afficher sur le plan de l'isolement acoustique une performance semblable à celle qu'on obtient en laboratoire.
- La transmission indirecte découlant d'une conception ou d'une construction mal exécutée à la jonction de deux murs ou du mur et du plancher risque d'influer considérablement sur l'isolement acoustique d'une construction à ossature de bois. Par exemple, disposer un platelage en contreplaqué sous un mur mitoyen à double ossature fait passer l'indice de transmission du son de 62 à 45.
- La méthode d'essai standard d'isolement aux bruits aériens, dont fait état la norme ASTM E336, permet d'obtenir une mesure de la perte de transmission nette entre deux pièces et par conséquent ne peut servir qu'à détecter la transmission indirecte, et non à en établir la cause.
- Les méthodes d'intensité acoustique permettent d'établir la perte de transmission de chaque surface (ou partie d'une surface) en place, et ainsi de détecter les surfaces en cause dans la transmission indirecte. Par contre, les méthodes d'intensité acoustique prennent beaucoup de temps et requièrent que la pièce réceptrice fasse l'objet d'un traitement d'absorption acoustique avant que l'on puisse obtenir des données fiables.
- La mesure de la vitesse superficielle ne peut pas servir à établir la perte de transmission d'une cloison, mais à classer par ordre de grandeur l'énergie de vibration de surfaces comportant de tels matériaux. La mesure de la vitesse superficielle qui se prend facilement peut s'avérer un outil puissant pour déterminer les surfaces en cause dans les voies de transmission indirecte.
- L'essai standard d'isolement contre les bruits d'impact, prévu dans la norme ASTM E1007, permet d'obtenir des informations significatives sur la voie de la transmission indirecte, surtout si elle emprunte une partie du plancher.

L'excitation causée par les bruits d'impact de toute surface individuelle d'une pièce et la mesure du niveau de pression acoustique en découlant dans la pièce réceptrice offre la possibilité de constituer une méthode d'essai utile et relativement facile pour déterminer les voies de transmission indirecte.

NOTE : Also available in English under the title: *Flanking Sound Transmission in Wood Framed Construction.*

**TRANSMISSION DES SONS À TRAVERS LES PLANCHERS : PHASE III :  
RAPPORT SOMMAIRE.**

*Préparé par A.C.C. Warnock. Ottawa : Division de l'innovation dans l'habitation, Société canadienne d'hypothèques et de logement, 1993.*

Les bruits de pas et autres bruits d'impact sont fréquemment dérangeants dans les logements collectifs. Il existe des essais normalisés [ASTM E492, ASTM E1007, ISO 140] pour mesurer la transmission des bruits d'impact à travers les planchers. Cependant, les recherches ont conclu que les indices établis [ASTM E989, ISO 717] ne correspondent pas à la perception humaine des bruits de pas sur un plancher. Certains planchers sembleraient acceptables d'après ces essais, mais les occupants d'appartements les estiment inacceptables à cause des bruits sourds et lourds à basse fréquence. C'est le cas particulièrement des constructions à solives de bois et d'autres constructions légères semblables comportant des planchers revêtus de moquette.

Les données citées dans ce rapport sont tirées d'un document de recherche portant sur un nouvel essai qui pourrait servir à évaluer la transmission des bruits d'impact à basse fréquence à travers les constructions à ossatures de plancher légères. On a fait des études sur deux types de planchers à solives de bois, trois types de planchers à solives préfabriquées et un plancher de béton massif. Outre les essais sur les planchers de base sans revêtement de sol, des essais ont été faits sur des planchers revêtus. On y a posé une moquette, une moquette avec thibaude et trois types de planchers flottants. Différentes configurations des cinq planchers et des cinq revêtements constituaient les spécimens destinés aux principales séries de mesures. Dans certains cas, d'autres revêtements ont été mis à l'essai. En tout, la transmission sonore a été mesurée sur 75 planchers différents.

L'analyse des données a démontré que le meilleur compromis en ce qui concerne les essais de transmission des bruits d'impact à travers les planchers serait de continuer d'utiliser la machine à choc ASTM/ISO mais d'étendre la plage de fréquences jusqu'à 50 Hz. En outre, un nouvel indice simple devrait remplacer l'indice d'isolement aux bruits d'impact [ASTM E989] et l'indice des bruits d'impact pondéré,  $L_{n,w}$ . Un nouveau référent, appelé indice de machine à choc, n'est pas encore reconnu officiellement.

NOTE : Also available in English under the title: *Sound Transmission Through Floors.*

## ISOLATION SONORE - PORTES DE GARAGES ET CHUTES À DÉCHÊTS

### Objet :

Élaborer des méthodes génériques d'installation des portes de garage et de chutes à déchets, respectueuses des contraintes budgétaires, structurales, spatiales et pratiques inhérentes à tout projet de construction.

### Division :

Division de la recherche  
Programme de subvention de recherche

### Contractant :

Michel Morin  
MJM Conseillers en  
acoustique inc.  
6555, chemin Côte-des-neiges  
Suite 440  
Montréal (Québec)  
H3S 2A6

### NIC :

1096 0200001

### Numéro de la gestion des documents :

6585/M088-4

## MODELLING OF ROAD NOISE AND OPTIMAL BARRIER DESIGN

### Objective:

This study will apply the newly developed modelling tools to the prediction of road noise attenuation utilizing barriers and berms.

### Division:

Research Division  
External Research Program

### Contractor:

Dr. Ken R. Fyfe  
Department of Mechanical  
Engineering  
University of Alberta  
Edmonton, Alberta  
T6G 2G8

### CIDN:

1086 0200001

### Central Registry:

6585/F039

## NOISE CONTROL (REVISED)

### Objective:

To update and add-to the existing publication for the Builders' Series on reducing noise in housing.

### Division:

Housing Innovation Division

### Contractor:

Scanada Consultants Limited  
436 MacLaren Street  
Ottawa, Ontario  
K2P 0M8

### CIDN:

0977 0300000

### Central Registry:

6506-9



### Ongoing Projects/Projets en cours

#### **DEVELOPMENT OF INTERIOR DAMPROOFING STRATEGY TO PREVENT BASEMENT WALL CONDENSATION DURING CURING**

##### **Objective:**

To investigate through sophisticated computer simulation, several interior basement wall dampproofing strategies that would be acceptable to builders and would minimize the risk and extent of damage caused by the condensation problem.

##### **Division:**

Research Division  
External Research Program

##### **Contractor:**

Monsieur André Gagné  
Association provinciale des  
constructeurs d'habitations  
du Québec  
5800, boul. L.H. Lafontaine  
Anjou (Québec)  
H1M 1S7

##### **CIDN:**

0921 0200001

##### **Central Registry:**

6585/G66

#### **VIDEO & BOOKLET ON BUILDING BETTER BASEMENTS FOR CANADIAN RESIDENTIAL CONSTRUCTION**

##### **Objective:**

Will produce a video and booklet on building better basements for Canadian residential construction.

##### **Division:**

Housing Innovation Division

##### **Contractor:**

Ontario New Home Warranty  
Program  
North York City Centre  
North East Tower  
6th Floor  
5160 Yonge Street  
North York, Ontario  
M2N 6L9

##### **CIDN:**

0978 0300004

##### **Central Registry:**

6509-2

### FIELD TEST OF IMPROVED WALLS

**Objective:**

To carry out monitoring on a highrise residential building in Ottawa to assess performance of the brick veneer/steel stud envelope.

**Division:**

Housing Innovation Division

**Contractor:**

Keller Engineering Associates Inc.  
1390 Prince of Wales Drive  
Ottawa, Ontario  
K2C 3N6

**CIDN:**

0411 0301001  
0411 0302001  
0411 0303001

**Central Registry:**

6796-3-6

### PREPARATION OF BEST PRACTICE GUIDE FOR FLASHING DETAILS, MASONRY VENEER/ CONCRETE BLOCK CONSTRUCTION AND WOODFRAME CONSTRUCTION

**Objective:**

To prepare three guides on building envelope design:  
1) a 'best practice' guide for concrete block exterior wall construction; 2) a 'best practice' guide for various exterior wall assemblies with wood frame construction; 3) a 'best practice' guide for the flashing of wood, concrete and steel frame building envelopes. The documents will contain details, specifications, sequence of construction and information on inspection and commissioning.

**Division:**

Housing Innovation Division

**Contractor:**

Robert Halsall & Associates/Otto & Bryden Arch.  
210 Gladstone Avenue  
Ottawa, Ontario  
K2P 0Y6

**CIDN:**

0974 0300001

**Central Registry:**

6503-15

### PREPARE A BEST PRACTICE GUIDE FOR MASONRY VENEER/STEEL STUD EXTERIOR WALL CONSTRUCTION

**Objective:**

To prepare a best practice guide for steel stud exterior wall construction: collect and review recent publications, solicit suggestions for additional material to review from authors of known publications and from manufacturers of steel studs.

**Division:**

Housing Innovation Division

**Contractor:**

Posey Construction  
Specifications  
P.O. Box 1756  
Station M  
Calgary, Alberta  
T2P 2L8

**CIDN:**

0839 0300001

**Central Registry:**

6503-24

**TESTING OF REINFORCED  
OR PRE-STRESSED BRICK  
VENEER WALL SYSTEMS  
USING A BRICK VENEER  
WALL SYSTEM**

**Objective:**

To demonstrate the feasibility and potential for this brick veneer wall system, and to identify further research and development needs including laboratory investigations, design details, and construction guidelines.

**Division:**

Research Division  
Housing Technology  
Incentives Program

**Contractor:**

Canada Brick  
2121 Britannia Road West  
Box 668  
Streetsville, Ontario  
L5M 2C3

**CIDN:**

1177 0200001

**Central Registry:**

6521-7-93

**ZERO-CAVITY, PRESSURE  
EQUALIZED RAINSCREEN  
WALL SYSTEM**

**Objective:**

To investigate the performance of the zero-cavity, pressure equalized rainscreen wall system. To investigate the consequences of completely filling the air space behind brick cladding with a fibrous, draining insulation to answer the following questions: can masons build this wall, will the insulation drain, will the cavity pressure equalize, will the brick become too warm or too cold, and will the water reach the sheathing by capillary action?

**Division:**

Housing Innovation Division

**Contractor:**

University of Waterloo  
Building Engineering Group  
Civil Engineering Department  
Waterloo, Ontario  
N2L 3G1

**CIDN:**

0689 0300001

**Central Registry:**

6793-21-1



### **DEVELOPMENT OF A NEW EDITION OF THE STANDARD FOR CONCRETE CONSTRUCTION FOR HOUSING AND SMALL BUILDINGS (CSA A438)**

#### **Objective:**

To carry out the development of a new edition of the standard for concrete construction for housing and small buildings (CSA A438).

#### **Division:**

Research Division

#### **Contractor:**

Canadian Standard Association  
178 Rexdale Boulevard  
Toronto, Ontario  
M9W 1R3

#### **CIDN:**

1259 0200001

#### **Central Registry:**

5610-37

### **DURABILITY OF FIBRE-REINFORCED PLASTIC (FRP) REBARS IN CONCRETE STRUCTURES**

#### **Objective:**

Scientific research and development concerning the durability of fibre-reinforced plastic (FRP) rebars in concrete structures.

#### **Division:**

Research Division

#### **Contractor:**

National Research Council  
1200 Montreal Road  
Ottawa, Ontario  
K1A 0R6

#### **CIDN:**

1172 0200001

#### **Central Registry:**

6711-10

## Ongoing Projects/Projets en cours

### ANALYSIS OF ENVIRONMENTAL SITE ASSESSMENTS USED IN LAND TRANSACTIONS

**Objective:**

To conduct a survey of the quality and acceptability of environmental site assessments (ESAs) submitted for land transactions; to create a guide to the interpretation of Phase I ESAs.

**Division:**

Research Division

**Contractor:**

Jacques Whitford  
Environment Limited  
2781 Lancaster Road  
Suite 200  
Ottawa, Ontario  
K1B 1A7

**CIDN:**

1255 0200001

**Central Registry:**

6755-6

### DEVELOP PUBLICATION FOR ENVIRONMENTAL SITE ASSESSMENTS

**Objective:**

To develop a non-technical publication which will provide an introduction and background information on environmental site assessments for use of lenders, developers, and program officers.

**Division:**

Research Division

**Contractor:**

Marbek Resource Consultants Ltd.  
500-1355 Bank Street  
Ottawa, Ontario  
K1H 8K7

**CIDN:**

1041 0200001

**Central Registry:**

6755-4-1

### EDITING OF "THE RELATIONSHIP BETWEEN URBAN SOIL CONTAMINATION AND HOUSING IN CANADA"

**Objective:**

Editing of "the relationship between urban soil contamination and housing in Canada".

**Division:**

Research Division

**Contractor:**

HLR Publishing Group  
51 Ottawa Street  
Arnprior, Ontario  
K7S 1W9

**CIDN:**

1307 0200001

**Central Registry:**

6755-5

### FIELD TESTS OF REMEDIAL MEASURES FOR HOUSES AFFECTED BY HAZARDOUS LANDS

**Objective:**

To monitor the effectiveness of remedial measures installed in houses across Canada to prevent hazardous soil gases from entering house air.

**Division:**

Research Division

**Contractor:**

CH2M Hill Engineering Ltd.  
180 King Street South  
Suite 600  
Waterloo, Ontario  
N2J 1P8

**CIDN:**

0820 0200001

**Central Registry:**

6719-19

### REVIEW OF TWO TECHNICAL DOCUMENTS DEALING WITH CLEAN-UP STANDARDS FOR CONTAMINATED SITES

**Objective:**

To review two technical documents dealing with clean-up standards for contaminated sites.

**Division:**

Research Division

**Contractor:**

Adamas Environmental Inc.  
40 Camelot Drive  
Ottawa, Ontario  
K2G 5X8

**CIDN:**

1306 0200001

**Central Registry:**

6755-5

### STUDY OF HOUSING ISSUES RELATED TO CONTAMINATED LAND SITES

**Objective:**

Assemble information regarding key housing issues in the area of contaminated land sites.

**Division:**

Research Division

**Contractor:**

Gardner Church  
12 Meadowcrest Road  
Etobicoke, Ontario  
M8Z 2Y2

**CIDN:**

1210 0200001

**Central Registry:**

6755-5

# COOPERATIVE AND NON-PROFIT HOUSING LOGEMENT SANS BUT LUCRATIF ET COOPÉRATIVE

## Ongoing Projects/Projets en cours

### ÉVALUATION DU PROGRAMME PLACEMENT - HABITAT

**Objet :**

Évaluation du programme placement - Habitat retenu aux termes du Programme de subventions de recherche de la SCHL - 1992.

**Division :**

Division de la recherche  
Programme de subventions de recherche

**Contractant :**

Robert Chagnon et associés  
4209, avenue Oxford  
Montréal (Québec)  
H4A 2Y5

**NIC :**

1085 0200001

**Numéro de la gestion des  
documents :**

6585/C066

### PERTINENCE ET FAISABILITÉ DE LA FORMULE COOPÉRATIVE D'HABITATION - ÉQUITÉ

**Objet :**

Le projet de recherche porte sur la conception et la mise en oeuvre d'un programme d'auto-développement pour le secteur coopératif en habitation.

**Division :**

Division de la recherche  
Programme de subventions de recherche

**Contractant :**

Madame Marie J. Bouchard  
Centre de gestion des coopératives  
333, chemin de la Reine-Marie, local 640  
Montréal (Québec)  
H3V 1A2

**NIC :**

1084 0200001

**Numéro de la gestion des  
documents :**

6585/B090-1

### POUR UNE MISE EN MARCHE EFFICIENTE DES COOPÉRATIVES D'HABITATION AVEC INVESTISSEMENT DES MEMBRES

**Objet :**

Évaluer le(s) produit(s) d'habitation coopérative dans une perspective marketing, mais aussi, élaborer une méthodologie de lancement de ces nouveaux concepts.

**Division :**

Division de la recherche  
Programme de subventions de recherche

**Contractant :**

Monsieur Guy Ara  
Faculté d'administration  
Université de Sherbrooke  
Sherbrooke (Québec)  
J1K 2R1

**NIC :**

0907 0200001

**Numéro de la gestion des  
documents :**

6585/A39



### Completed Reports/Rapports terminés

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#### **HOUSING AWARDS, 1992: INDEPENDENCE THROUGH HOUSING: HOUSING SOLUTIONS FOR INDEPENDENCE AND COMMUNITY INTEGRATION FOR PEOPLE WITH DISABILITIES (NHA 6751).**

*Ottawa: Canada Mortgage and Housing Corporation, 1993.*

The biennial Housing Awards Program, initiated by CMHC in 1987, recognizes demonstrated excellence and innovation in housing. The 1992 program focussed on improving housing for people with disabilities. To be eligible for an award, participants in the competition had to meet two important criteria: the housing had to be accessible to people with disabilities and it had to be integrated successfully into the community. Sixteen meritorious entries are contained in this book. Six entries received a top award and 10 received honourable mentions. All of the entries share a remarkable sensitivity to the requirements of specific groups of people with disabilities - whether they are senior citizens with mobility problems, adults with severe physical disabilities, or individuals with chronic mental health problems.

NOTE: Aussi disponible en français sous le titre : *Prix d'excellence en habitation 1992 : autonomie chez soi d'abord (LNH 6752).*

#### **PRIX D'EXCELLENCE EN HABITATION, 1992 : AUTONOMIE CHEZ SOI D'ABORD : DES LOGEMENTS QUI FAVORISENT L'AUTONOMIE ET L'INTÉGRATION COMMUNAUTAIRE DES PERSONNES HANDICAPÉES (LNH 6752).**

*Ottawa : Société canadienne d'hypothèques et de logement, 1993.*

Le programme des prix d'excellence en habitation créé par la SCHL en 1987 souligne l'excellence et l'innovation dans l'habitation. En 1992, le programme était axé sur l'amélioration du logement pour les personnes handicapées. Pour se mériter un prix, les participants au concours devaient répondre à deux critères importants : le logement devait être accessible pour les personnes handicapées et il devait bien s'intégrer au milieu. Cette brochure décrit 16 idées méritoires dans quatre catégories. Six propositions ont obtenu un prix et dix, des mentions honorables. Toutes les propositions témoignent d'une remarquable sensibilité aux besoins de groupes particuliers de personnes handicapées, qu'il s'agisse d'ainés dont la mobilité est réduite, d'adultes atteints de graves handicaps physiques ou de personnes souffrant de troubles mentaux chroniques.

NOTE : Also available in English under the title: *Housing Awards, 1992: Independence Through Housing (NHA 6751).*

## **BARRIER-FREE AND AUTOMATED DEMONSTRATION HOUSE**

### **Objective:**

To carry out the design, construction and display of a "barrier-free and automated demonstration house" including production of video material, commentary, and report.

### **Division:**

Research Division

### **Contractor:**

Adaptable Housing Ltd.  
#4 - 5839 Vine Street  
Vancouver, British Columbia  
V6M 4A2

### **CIDN:**

1229 110001

### **Central Registry:**

6535-17-2

## **BARRIER-FREE ENTRANCE DOOR LOCK**

### **Objective:**

To develop a design for a product "a barrier-free entrance door lock" that will be easy to retro-fit in standard existing doors and be very easy for persons with limited hand strength or dexterity to operate.

### **Division:**

Research Division

### **Contractor:**

RBO Architecture  
#1 - 730 West 7th Avenue  
Vancouver, British Columbia  
V5Z 1B8

### **CIDN:**

1225 0200001

### **Central Registry:**

6521-26/93

## **CRITÈRES DE PERFORMANCE EN ACCESSIBILITÉ UNIVERSELLE ET IMPLICATION ÉCONOMIQUE**

### **Objet :**

Porte sur le logement accessible et adaptable et plus particulièrement sur une version économiquement réalisable de l'accessibilité universelle.

### **Division :**

Division de la recherche  
Programme de subventions de recherche

### **Contractant :**

Madame Sophie Lanctôt  
Société d'habitation  
communautaires logique inc.  
3250, boul. St-Joseph est  
Montréal (Québec)  
H1Y 3G2

### **NIC :**

1092 0200001

### **Numéro de la gestion des documents :**

6585/L052-1

## **AN EXPLORATION OF DESIRABILITY OF HOUSING LOCATION BY CONSUMERS OF PSYCHIATRIC SERVICES**

### **Objective:**

To conduct a focus group comprised of tenants from three types of housing, to conduct 60 semi-structured interviews with tenants in the three aforementioned housing settings.

### **Division:**

Research Division  
External Research Program

### **Contractor:**

Ms. Katherine M. Boydell  
Queen Street Mental Health  
Centre  
1001 Queen Street West  
Toronto, Ontario  
M6J 1H4

### **CIDN:**

1272 0200001

### **Central Registry:**

6585/B104

## **FEASIBILITY OF DISABILITY-INTEGRATED, UNIVERSALLY DESIGNED INFILL CO-HOUSING IN AN URBAN SETTING**

### **Objective:**

To create a document which includes: a model of typical infill co-housing based on current literature and post-occupancy evaluation of existing co-housing developments and their residents, etc.

### **Division:**

Research Division  
External Research Program

### **Contractor:**

Mr. David Wetherow  
Executive Director  
Association for Community  
Living  
1706 - 90 Garry Street  
Winnipeg, Manitoba  
R3C 4J4

### **CIDN:**

1101 0200001

### **Central Registry:**

6585/W018-1

### FOCUS GROUP SESSIONS TO EXAMINE BARRIER-FREE AND ADAPTABLE HOUSING DESIGNS

**Objective:**

To obtain the views of older adults, seniors, and adults with various types of disabilities in all age categories, on their levels of interest, needs and preferences relating to barrier-free and adaptable housing.

**Division:**

Research Division

**Contractor:**

Hickling Corporation  
350 Sparks Street  
6th Floor  
Ottawa, Ontario  
K1R 7S8

**CIDN:**

1000 1100002

**Central Registry:**

6535-13

### UN GUIDE ILLUSTRÉ DE CARACTÉRISTIQUES DE CONCEPTION FAVORISANT L'ACCESSIBILITÉ

**Objet :**

De produire un guide illustré de caractéristiques de conception favorisant l'accessibilité, qui soient adaptables et efficaces par rapport aux coûts tout en pouvant être intégrées dans divers types d'habitations.

**Division :**

Division de la recherche

**Contractant:**

Société logique inc.  
3250, boulevard St-Joseph est  
Montréal (Québec)  
H1Y 3G2

**NIC :**

1240 1100001

**Numéro de la gestion des documents :**

6535-17-1

### HOUSING NEEDS OF PEOPLE WITH DISABILITIES

**Objective:**

To provide a profile of the housing characteristics and needs of people with disabilities using data from the 1991 Census and post-censal Health and Activity Limitations Survey (HALS).

**Division:**

Research Division

**Contractor:**

ARK Research Associates  
165 Hinton Avenue North  
Ottawa, Ontario  
K1Y 0Z9

**CIDN:**

1045 0200003

**Central Registry:**

6620-2

### HOUSING PEOPLE WITH DISABILITIES

**Objective:**

Updating of the NHA publications #5467 and 5468: Housing Disabled Persons.

**Division:**

Research Division

**Contractor:**

Associated Planning  
Consultants Inc.  
191 Eglinton Avenue East  
Suite 303  
Toronto, Ontario  
M4P 1K1

**CIDN:**

1298 0200001

**Central Registry:**

6530-35



**LOW-RISE APARTMENT  
CONVERSIONS FOR PEOPLE  
WITH VISION, HEARING AND  
MOBILITY IMPAIRMENTS**

**Objective:**

To develop plans, strategies and cost estimates for the adaptation of all or parts of typical three storey walk-up apartment buildings for the purpose of supplying barrier-free housing options to seniors and other people with disabilities.

**Division:**

Research Division

**Contractor:**

Saskatchewan Housing  
Corporation  
North Canadian Oils Building  
900 - 2500 Victoria Avenue  
Regina, Saskatchewan  
S4P 3V7

**CIDN:**

1321 1100001

**Central Registry:**

6525-11

**PROJET DE  
DÉMONSTRATION DE  
SERVICES INTÉGRÉS DE  
MAINTIEN À DOMICILE  
POUR PERSONNES  
HANDICAPÉES**

**Objet :**

L'installation dans un logement qui est spécialement aménagé d'un système domotique adapté pour permettre à une personne tétraplégique de contrôler par lui-même une série d'appareils et de fonctions domestiques usuelles dans le cadre du "projet de démonstration de services intégrés de maintien à domicile pour personnes handicapées".

**Division :**

Division de l'innovation dans  
l'habitation

**Contractant :**

Domotique Secant Inc.  
5699, boulevard Monk  
Montréal (Québec)  
H4E 3G9

**NIC :**

0972 0300001

**Numéro de gestion des  
documents :**

6530-39

**STUDY OF HOME  
ADAPTATIONS CARRIED  
OUT UNDER THE HASI AND  
RRAP-D PROGRAMS**

**Objective:**

To determine the range and types of adaptations that are being carried out by various client groups under both programs; assess the effectiveness of the various adaptations in helping people in their daily lives; assess the relative importance of the various types of adaptations in helping people to continue to live in their own homes; determine the costs associated with different types of adaptations; and identify problems or benefits associated with alternative ways of undertaking the work.

**Division:**

Research Division

**Contractor:**

Social Data Research Limited  
Suite 750  
130 Slater Street  
Ottawa, Ontario  
K1P 6E2

**CIDN:**

1128 1100001

**Central Registry:**

6600-1

## Completed Reports/Rapports terminés

### **CAHIER D'INFORMATION SUR LES BAUX VIAGERS : RÉSULTATS D'UNE ENQUÊTE AUPRÈS D'ORGANISMES DE PARRAINAGE.**

*Préparé par Christine Davis, Social Data Research Limited. Ottawa : Société canadienne d'hypothèques et de logement, 1993.*

Ce Cahier d'information présente les résultats de l'enquête nationale auprès des organismes qui parrainent des ensembles offrant des baux viagers. Réalisée par la firme Social Data Research Ltd. à la demande du Centre canadien du partenariat public-privé dans l'habitation de la Société canadienne d'hypothèques et de logement, l'enquête a permis d'obtenir des renseignements sur des ensembles existants offrant des baux viagers dans l'ensemble du pays. L'étude des éléments clés faisant partie des contrats de baux viagers constitue l'une des principales caractéristiques du Cahier d'information. Le document vise surtout les aînés et leurs consultants, ainsi que les organismes de parrainage éventuels, les investisseurs, les institutions de prêts hypothécaires et les assureurs. Les résultats de l'enquête démontrent les possibilités qu'offrent les baux viagers aux aînés, en ce qui a trait aux logements abordables et aux habitations en milieu de soutien. Ce Cahier d'information précise les avantages qu'offrent les baux viagers et les risques auxquels s'exposent les intervenants, et résume les questions et les défis associés à ce type de contrat.

NOTE : Also available in English under the title: *Source Book on Life Leases*.

### **GARDEN SUITES: A NEW HOUSING OPTION FOR ELDERLY CANADIANS (Rev. Ed., NHA 5994).**

*Ottawa: Canada Mortgage and Housing Corporation, 1993.*

This booklet explains the concept of Garden Suites as a housing option for seniors and describes the conditions that are suitable for its implementation. It presents its advantages, provides examples of unit design and lists useful contacts for potential suppliers.

NOTE: Aussi disponible en français sous le titre : *Les Pavillons-jardins : nouvelle option de logement pour les Canadiens âgés (LNH 5995)*.

### **LES PAVILLONS-JARDINS : NOUVELLE OPTION DE LOGEMENT POUR LES CANADIENS ÂGÉS (Éd. rev., LNH 5995).**

*Ottawa: Société canadienne d'hypothèques et de logement, 1993.*

Cette brochure explique le concept des pavillons-jardins comme option de logement à l'intention des aînés et les conditions favorables à leur mise en oeuvre. Elle présente leurs avantages, fournit des exemples de modèles ainsi qu'une liste de contacts de fournisseurs éventuels.

NOTE : Also available in English under the title: *Garden-Suites: A New Housing Option for Elderly Canadians (NHA 5994)*.

## **PROMOTION DE L'AUTONOMIE DES PERSONNES ÂGÉES PAR L'ADAPTATION DE LEUR DOMICILE.**

*Préparé par Danielle Maltais, Francine Trickey, Yvonne Robitaille et Céline Gosselin; Unité de santé publique, Hôpital général de Montréal. Préparé pour la Division de la recherche, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1993.*

De 1987 à 1990, le Département de santé communautaire de l'Hôpital général de Montréal a développé, implanté et évalué une approche intensive d'adaptation du domicile, visant à promouvoir l'autonomie de personnes âgées. L'intervention était destinée à des personnes âgées d'au moins 60 ans et comprenait une évaluation du niveau d'autonomie des participants, une analyse de leur logement et des recommandations de modifications ou d'adaptations dans leur logement, en vue d'améliorer leur niveau de fonctionnement dans les activités de la vie quotidienne. Ce rapport présente les principaux résultats obtenus en ce qui concerne la population rejointe, les modifications réalisées dans le domicile et les effets du programme sur le niveau d'autonomie des personnes âgées.

Le programme a été bien reçu. Soixante-neuf pourcent (69 %) des personnes qui se sont vues offrir l'intervention ont accepté et reçu au moins une modification dans leur logement. Sur le plan des modifications réalisées, la salle de bains, la chambre à coucher et la cuisine sont les pièces les plus souvent adaptées. Au total, 898 adaptations ont été effectuées avec une moyenne de 5 adaptations par logement. Le coût d'achat des adaptations varie entre 5,00 \$ et 1 094 \$ par logement, avec une moyenne de 184,77 \$. Les barres d'appui, les douches-téléphone, les sièges de douche, et l'ajout de téléphones dans les pièces sont parmi les adaptations les plus souvent réalisées.

Quant à la promotion de l'autonomie, les résultats sont plus décevants. Le niveau d'autonomie a été mesuré par le Système de Mesure de l'autonomie Fonctionnelle (SMAF), ainsi que par trois échelles adaptées de cet instrument. Six mois après la mesure initiale, les sujets du groupe expérimental n'ont pas un niveau d'autonomie supérieur à celui du groupe témoin; la détérioration du niveau d'autonomie n'est pas différente dans les deux groupes (expérimental 12,5 % vs témoin 11,6 %). L'adaptation du domicile ayant été mise sur pied telle que prévue, et le schéma de recherche ayant la rigueur voulue, il faut conclure que l'intervention n'était pas nécessairement offerte à un moment où le sujet était à la recherche d'une solution à ses problèmes de perte d'autonomie.

## **SOURCE BOOK ON LIFE LEASES: FINDINGS OF A SURVEY OF PROJECT SPONSORS.**

*Prepared by Christine Davis, Social Data Research Limited. Ottawa: Canada Mortgage and Housing Corporation, 1993.*

This Source Book reports the findings of a national survey of sponsors of life lease housing projects. The survey was undertaken by Social Data Research Ltd. in response to a request from the Canadian Centre for Public-Private Partnerships in Housing of Canada Mortgage and Housing Corporation for information about existing life lease housing projects across the country. One of the main components of the Source Book is an examination of the key elements included in the life lease agreement between all parties. The target audiences for the document are seniors and their advisors as well as potential sponsors, investors, mortgage lenders and insurers. The results of the study demonstrated the potential of the life lease option to provide affordable and supportive housing for seniors in Canada. The Source Book details the advantages of the life lease, raises possible risks for all parties and outlines related issues and challenges.

NOTE: Aussi disponible en français sous le titre : *Cahier d'information sur les baux viagers.*



### Ongoing Projects/Projets en cours

#### COMPUTERIZED SET OF TOOLS THAT WILL ASSIST IN DEVELOPING PROFILES OF THE NEEDS AND PREFERENCES OF SENIORS IN RURAL AREAS

**Objective:**

Design, develop, test and produce a computerized set of tools that can be used by local organizations and agencies to identify the current and future housing and service needs of their senior population and evaluate the options for meeting these needs.

**Division:**

Research Division

**Contractor:**

Tetrad Computer Applications Limited  
1445 West Georgia Street  
Vancouver, British Columbia  
V6G 2T3

**CIDN:**

0528 0200001

**Central Registry:**

6530-25

#### DEPLOYMENT AND CONTROL OF GARDEN SUITES

**Objective:**

To produce a guide document which deals comprehensively with issues faced by municipalities, suppliers, host families and occupants, in the deployment and use of Garden Suites, and provide practical examples of approaches and tools which can address these issues.

**Division:**

Research Division

**Contractor:**

Allen E. Brass Associates Inc.  
8 Burnside Drive  
Toronto, Ontario  
M6G 2M8

**CIDN:**

1120 0200001

**Central Registry:**

6530-5

#### THE GRAYING OF CANADIAN SUBURBS: PATTERNS, PACE AND PROSPECTS

**Objective:**

To carry out a research project entitled the graying of Canadian suburbs: patterns, pace and prospects and to develop a statistical perspective on the degree and pace of aging of the population living in the suburban sector of Canada's metropolitan areas over the period 1971-1991.

**Division:**

Research Division  
External Research Program

**Contractor:**

Dr. Gerald J.F. Hodge  
Coplan Consultants  
427 East 10th Street  
North Vancouver, British Columbia  
V7L 2E5

**CIDN:**

0914 0200001

**Central Registry:**

6585/H3.5

## **A GUIDE TO PLANNING, DESIGNING, DEVELOPING, MARKETING AND MANAGING HOUSING FOR OLDER CANADIANS**

### **Objective:**

To produce an easy to follow and practical guide document that will assist both non-profit groups and the private sector in planning, designing, developing, marketing and managing a wide range of housing choices for older Canadians.

### **Division:**

Research Division

### **Contractor:**

Baycrest Centre for Geriatric Care  
3560 Bathurst Street  
North York, Ontario  
M6A 2E1

### **CIDN:**

0869 0200001

### **Central Registry:**

6530-1

## **HELPING SENIORS AND PEOPLE WITH DISABILITIES MAINTAIN THEIR INDEPENDENCE AT HOME: A GUIDE TO DELIVERING HOME ADAPTATIONS**

### **Objective:**

To produce a how-to guide document which will identify and describe the steps and resources involved in planning, designing, implementing, managing and marketing a variety of different approaches to delivering home adaptations for seniors and persons with disabilities.

### **Division:**

Research Division

### **Contractor:**

University of Manitoba  
Administration Building  
Room 202  
Winnipeg, Manitoba  
R3T 2N2

### **CIDN:**

1256 0200001  
1256 1100001

### **Central Registry:**

6530-42

## **HOME AND YARD MAINTENANCE FOR SENIORS**

### **Objective:**

To identify home and yard maintenance assistance for older people in Canada and other countries; to document specific information on successful home and yard maintenance assistance initiatives operating in Canada; to identify several generic types of initiatives and to develop a simple, well-written manual that will assist municipalities, organizations, and service clubs to develop initiatives suited to community needs and aspirations.

### **Division:**

Strategic Planning and Policy  
Development Division

### **Contractor:**

Sylvia Goldblatt Associates  
703-363 Laurier Avenue West  
Ottawa, Ontario  
K1N 8X6

### **CIDN:**

0953 0100001

### **Central Registry:**

6530-38

## Ongoing Projects/Projets en cours

### ASSESS THE IMPACT OF ENERGY EFFICIENCY IMPROVEMENT IN APPLIANCES ON DETACHED HOUSING

**Objective:**

Assess the impact of energy efficiency improvement in appliances on detached housing.

**Division:**

Research Division

**Contractor:**

Thermal Engineering  
15 Hanover Court  
Halifax, Nova Scotia  
B3M 3K7

**CIDN:**

1058 0200001

**Central Registry:**

6716-17-2

### EIFS RAINSCREEN PRODUCT SYSTEM

**Objective:**

Develop new methods of installing exterior insulation and finish systems (EIFS). The new product system will encompass interconnected aspects of the wall portion of the building envelope.

**Division:**

Research Division

**Contractor:**

STO Enterprises Inc.  
3495 Laird Road  
Units 16-18  
Mississauga, Ontario  
L5L 5S5

**CIDN:**

1268 0200001  
1268 0201001

**Central Registry:**

6521-32/93

### ENVIRONMENTAL IMPACT STUDY FOR HOUSING ENERGY EFFICIENCY TECHNOLOGY IMPACTS

**Objective:**

To assess the energy efficiency of improved thermal envelope performance and the impact of the envelope changes on the general environment and on indoor air quality.

**Division:**

Research Division  
Panel on Energy Research  
and Development

**Contractor:**

SAR Engineering Limited  
8884 - 15th Avenue  
Burnaby, British Columbia  
V3N 1Y3

**CIDN:**

0847 0200001  
0847 0201001

**Central Registry:**

6716-17-1

### ENVIRONMENTAL IMPROVEMENT THROUGH URBAN ENERGY MANAGEMENT

**Objective:**

To produce an overview paper on environmental improvement through urban energy management in Canada.

**Division:**

International Relations

**Contractor:**

Torrie Smith Associates  
255 Centrum Boulevard  
Suite 302  
Orleans, Ontario  
K1E 3V8

**CIDN:**

0878 0901001  
0878 0900004

**Central Registry:**

4305-4-8



## **HEAT, AIR, AND MOISTURE TRANSFER IN HIGH-RISE BUILDING ENVELOPES**

### **Objective:**

To develop design guidelines for energy efficiency and durability of wall structures and roofing systems of residential high-rise buildings.

### **Division:**

Research Division

### **Contractor:**

National Research Council  
Building M-20  
Montreal Road  
Ottawa, Ontario  
K1A 0R6

### **CIDN:**

0719 0200001  
0719 0201001

### **Central Registry:**

6793-28

## **INVESTIGATION OF EXTERIOR INSULATING AND FINISH SYSTEMS (EIFS)**

### **Objective:**

To carry out an investigation of exterior insulated and finish systems through controlled laboratory testing. The following will be tested: mesh tensile strength, moisture permeability, joint spacing, sealant bond, and joint design.

### **Division:**

Housing Innovation Division

### **Contractor:**

Warnock Hersey Professional  
Services Ltd.  
211 Schoolhouse Street  
Coquitlam, British Columbia  
V3K 4X9

### **CIDN:**

1057 0300001

### **Central Registry:**

6796-17

## **SITE SURVEY OF COMMUNITY ENERGY SYSTEMS**

### **Objective:**

To assess the use of co-generation technology in low-rise multiple housing; to evaluate its potential for significant reductions in energy use and environmental impact.

### **Division:**

Research Division

### **Contractor:**

Alco Engineers Inc.  
7270 Woodbine Avenue  
Suite 301  
Markham, Ontario  
L3R 4B9

### **CIDN:**

1032 0200001

### **Central Registry:**

6671/4

# ENVIRONMENTAL POLLUTION AND CONTROL POLLUTION DE L'ENVIRONNEMENT ET SON CONTRÔLE

## Completed Reports/Rapports terminés

### CLEAN-UP PROCEDURES FOR MOLD IN HOUSES (NHA 6753).

Ottawa: Canada Mortgage and Housing Corporation, 1993. \*\* Price: \$3.00 (includes handling charge and GST)

Molds are microorganisms that cause allergies, asthma and other health problems. It is not always easy to determine whether mold is a problem in a house. Many tell-tale signs, including smell, indicate that a house is obviously affected, though the absence of smell does not guarantee that mold is not a problem. The best preventive methods are to keep all surfaces as clean and dry as possible, and to prevent indoor air from becoming too moist. Once a problem occurs, however, more aggressive measures are required. Indoor mold spores must be removed and killed, and any toxic material they produce should be removed. This booklet describes specific measures which can be taken to eliminate an indoor mold problem and prevent reinfection.

NOTE: Aussi disponible en français sous le titre : *Élimination de la moisissure dans les maisons (LNH 6754).*

### ÉLIMINATION DE LA MOISSURE DANS LES MAISONS (LNH 6754).

Ottawa : Société canadienne d'hypothèques et de logement, 1993. \*\* Prix : 3,00 \$ (Les frais de manutention et la TPS sont compris).

Les moisissures sont des micro-organismes qui causent des allergies, de l'asthme et d'autres problèmes de santé. Il n'est pas toujours facile de savoir si une maison présente un problème de moisissure. De nombreux indices, notamment l'odeur, trahissent la contamination quoique l'absence d'odeur ne garantisse pas l'absence de problème. Les meilleures méthodes préventives consistent à garder les surfaces le plus sèches et le plus propres possibles et à empêcher l'air de devenir trop humide. En cas de problème, cependant on prendra des mesures plus radicales. Les spores de moisissure doivent être enlevées et détruites et toute substance toxique qu'elles produisent doit être éliminée. Ce livret décrit les mesures spécifiques qu'on peut prendre pour enrayer un problème de moisissure à l'intérieur et prévenir sa réapparition.

NOTE : Also available in English under the title: *Clean-up Procedures for Mold in Houses (NHA 6753).*

# **ADVICE ON THE DRAFTING OF EMISSION TEST STANDARDS**

## **Objective:**

Provide specific advice on improving three draft emission test standards.

## **Division:**

Research Division

## **Contractor:**

Stewart S. Fritts  
2415 Lazybrook  
Houston, Texas  
77008

## **CIDN:**

0200002

## **Central Registry:**

6719-3

# **CONCENTRATIONS DE RADON-222 AU QUÉBEC**

## **Objet :**

Évaluer les concentrations moyennes annuelles de radon présentées dans un échantillon représentatif de résidences dans la province de Québec.

## **Division :**

Division de la recherche  
Programme de subventions de recherche

## **Contractant :**

Monsieur Benoît Lévesque  
Centre hospitalier de  
l'université Laval  
2050, boul. Saint-Cyrille ouest  
Ste-Foy (Québec)  
G1V 2K8

## **NIC :**

0915 0200001

## **Numéro de la gestion des documents :**

6585/L63

# **DESIGN AND SPECIFICATIONS OF A CLEAN ADDITION TO AN EXISTING HOUSE**

## **Objective:**

To develop a generic design for a "clean addition" to an existing house to assist homeowners who want to build a clean environment for a hypersensitive member of the family; to identify appropriate building techniques and materials, and include alternative design options.

## **Division:**

Research Division

## **Contractor:**

Drerup-Armstrong Ltd.  
P.O. Box 130  
Carp, Ontario  
K0A 1L0

## **CIDN:**

1212 1100001

## **Central Registry:**

6717-16

# **DESIGN OF AND PROJECT MANAGEMENT SERVICES ASSOCIATED WITH A PREFABRICATED HOUSE FOR ENVIRONMENTALLY HYPERSENSITIVE**

## **Objective:**

To provide the design and project management services associated with a prefabricated house for environmentally hypersensitive. The objective of the project is to produce a low cost, energy efficient house with very high indoor air quality.

## **Division:**

Research Division

## **Contractor:**

James R. Cooke Structures  
Limited  
P.O. Box 3357, Station "D"  
Ottawa, Ontario  
K1P 6H8

## **CIDN:**

0938 1100001

## **Central Registry:**

6717-6

# **DEVELOPING TOOLS FOR MEASURING THE PERFORMANCE OF MOLD-TROUBLED HOUSING**

## **Objective:**

To develop tools for measuring the performance of mold-troubled housing.

## **Division:**

Research Division

## **Contractor:**

Appin Associates  
472 Academy Road  
2nd Floor  
Winnipeg, Manitoba  
R3N 0C7

## **CIDN:**

1243 0200002

## **Central Registry:**

6725-19-2

# **DEVELOPMENT OF A MECHANICAL SYSTEM FOR A RESIDENTIAL CLEAN HOME**

## **Objective:**

To determine the best mechanical system or systems that will provide heating and ventilation for the "clean" addition to an existing house.

## **Division:**

Research Division

## **Contractor:**

Drerup-Armstrong Ltd.  
P.O. Box 130  
Carp, Ontario  
K0A 1L0

## **CIDN:**

1213 1100001  
1213 1101001

## **Central Registry:**

6717-16



## ENVIRONMENTAL POLLUTION AND CONTROL POLLUTION DE L'ENVIRONNEMENT ET SON CONTRÔLE

### THE DEVELOPMENT OF A TRAINING PROGRAM FOR INDOOR AIR QUALITY HOUSE EXPERTS

**Objective:**

Development of a training program for IAQ house experts; delivery of the pilot course; evaluation of the pilot course; exploration of future administrators of the program.

**Division:**

Research Division

**Contractor:**

Jools Development  
P.O. Box 69  
Quadeville, Ontario  
K0J 2G0

**CIDN:**

1302 1100001

**Central Registry:**

6717-20

### EMISSION TESTING OF SELECTED BUILDING MATERIALS

**Objective:**

To conduct emission tests on groups of selected building materials (caulks, sealants, urethane foam, and pressed wood products).

**Division:**

Research Division

**Contractor:**

National Research Council  
Institute for Research in  
Construction  
Montreal Road  
Ottawa, Ontario  
K1A 0R6

**CIDN:**

0964 1100002

**Central Registry:**

6717-7

### ÉTUDE D'ÉVALUATION DU NETTOYAGE DES CONDUITS D'INSTALLATIONS RÉSIDENTIELLES

**Objet :**

Établir l'efficacité du nettoyage des conduits des installations résidentielles par des essais effectués sur un échantillon de maisons avant et après le nettoyage des conduits par des spécialistes.

**Division :**

Division de la recherche

**Contractant :**

Auger, Donnini & Nguyen  
460, rue Ste-Catherine ouest  
Porte 905  
Montréal (Québec)  
H3B 1B1

**NIC :**

0994 0200001

**Numéro de la gestion des  
documents :**

6725-21

### AN EVALUATION OF THE BARRHAVEN HOUSING PROJECT

**Objective:**

To undertake an evaluation of the Barrhaven housing project, a housing project in Ottawa, Ontario designed for the environmentally hyper-sensitive; to survey the occupants and landlord to assess whether their needs are being met and what advantages or limitations are encountered with this type of housing.

**Division:**

Research Division

**Contractor:**

Flett Consulting Groups Inc.  
130 Slater Street, Suite 750  
Ottawa, Ontario  
K1P 6E2

**CIDN:**

1323 0200001  
1323 1100001

**Central Registry:**

6717-19

### AN EVALUATION OF THE SCREENING MEASUREMENT AS AN INDICATOR OF AVERAGE ANNUAL INDOOR RADON EXPOSURE

**Objective:**

Assess the short term screening measurement as an indicator of the average annual radon levels in homes.

**Division:**

Research Division  
External Research Program

**Contractor:**

Lafontaine Consulting  
Services  
106 Krug Street  
Kitchener, Ontario  
N2H 2X9

**CIDN:**

1276 0200001

**Central Registry:**

6585/L060-4

## **GUIDE TO MECHANICAL EQUIPMENT FOR HEALTHY INDOOR ENVIRONMENTS**

### **Objective:**

To develop a guide to mechanical equipment for healthy indoor environments, covering heating, cooling, ventilating and air purification equipment.

### **Division:**

Research Division

### **Contractor:**

Habitat Design & Consulting Ltd.  
1662 West - 75th Avenue  
Vancouver, British Columbia  
V6P 6G2

### **CIDN:**

1031 1100001

### **Central Registry:**

6717-13

## **INVESTIGATIONS OF PROBLEM HOMES OF THE ENVIRONMENTALLY HYPERSENSITIVE**

### **Objective:**

To investigate five problem homes of the environmentally hypersensitive. To undertake a complete chemical analysis, identification of biological pollutants, measurement of air changes, other parameters (CO<sub>2</sub>, humidity and temperature) as well as air distribution, before and after remediation.

### **Division:**

Research Division

### **Contractor:**

National Research Council of Canada  
Institute for Research in Construction  
Ottawa, Ontario  
K1A 0R6

### **CIDN:**

1033 1100002

### **Central Registry:**

6717-14

## **PESTICIDE EXPOSURE AND THE CONDITION OF PATIENTS SUFFERING FROM ENVIRONMENTAL HYPERSENSITIVITY**

### **Objective:**

To conduct research on the relationship between pesticide exposure and the condition of patients suffering from environmental hypersensitivity.

### **Division:**

Research Division

### **Contractor:**

University of Toronto  
Department of Preventive Medicine and Biostatistics  
Faculty of Medicine  
Toronto, Ontario  
M5S 1A8

### **CIDN:**

1215 1100001

### **Central Registry:**

6717-20

## **A PLANNING MODEL FOR ESTIMATION OF PHOSPHORUS LOADING FROM ON-SITE SYSTEMS**

### **Objective:**

A systematic examination of the variables that may control phosphorus contributions to lakes. The model will recognize loadings leaving an on-site system, differences between failed systems and normal operation, geology, and soils.

### **Division:**

Research Division  
External Research Program

### **Contractor:**

Dr. Donald H. Waller  
Technical University of N.S.  
P.O. Box 1000  
Halifax, Nova Scotia  
B3J 2X4

### **CIDN:**

0918 0200001

### **Central Registry:**

6585/W29-2

## **PREPARE AND PROVIDE SAMPLES OF BUILDING MATERIALS**

### **Objective:**

To prepare and provide the Corporation with samples of building materials to determine their impact on hypersensitive people.

### **Division:**

Research Division

### **Contractor:**

Eric Brackenbury  
101 Snelgrove Drive  
P.O. Box 253  
Carp, Ontario  
K0A 1L0

### **CIDN:**

0964 1100003

### **Central Registry:**

6717-29

## **PRODUCTION OF AN EMISSIONS TESTING NEWSLETTER AND SUPPORT FOR THE TASK FORCE ON MATERIAL EMISSIONS STANDARDS**

### **Objective:**

To carry out production of an emissions testing newsletter and support for the task force on material emissions standards.

### **Division:**

Research Division

### **Contractor:**

Scanada Consultants Limited  
436 MacLaren Street  
Ottawa, Ontario  
K2G 0M8

### **CIDN:**

1244 0200001

### **Central Registry:**

6719-3

# ENVIRONMENTAL POLLUTION AND CONTROL POLLUTION DE L'ENVIRONNEMENT ET SON CONTRÔLE

## PROTOCOL FOR RESIDENTIAL INDOOR AIR QUALITY INVESTIGATIONS

### Objective:

Develop a protocol or expert system to assist in the analysis or problems associated with unhealthy or hazardous residential buildings. The research will identify and investigate several buildings in the Ottawa area to test and improve the protocol.

### Division:

Research Division  
External Research Program

### Contractor:

George E. Vandrish  
Research Director  
Instruscience Limited  
484 Gladstone Avenue  
Ottawa, Ontario  
K1R 5N8

### CIDN:

0926 0200001

### Central Registry:

6585/V17-2

## PROTOTYPE MECHANICAL SYSTEM FOR PREFABRI- CATED HOUSE

### Objective:

To design and install a unique integrated but modular heating, ventilation and cooling system in a small energy efficient house designed specifically for people who are environmentally hypersensitive.

### Division:

Research Division

### Contractor:

Geddes Entreprises  
45 Massey Street  
Bramalea, Ontario  
L6S 2V8

### CIDN:

0928 1102001

### Central Registry:

6760-10

## RESIDENTIAL ENVIRON- MENTAL HAZARD POLICIES IN OTHER COUNTRIES

### Objective:

Prepare a report on policies surrounding residential environmental hazards in other countries.

### Division:

Strategic Planning and Policy  
Development Division

### Contractor:

ARA Consulting Group Inc.  
475 Howe Street, Suite 402  
Vancouver, British Columbia  
V6C 2B3

### CIDN:

0969 0100001

### Central Registry:

6716-21

## SAMPLING OF MOULDS IN HUMIDIFIERS OF FORCED AIR DUCTS

### Objective:

To inspect forced air ducts being cleaned for the presence of mould in the region of humidifiers attached to the ducting system.

### Division:

Research Division

### Contractor:

Fred Ayoub  
Capital Air Care  
30 Armstrong Street  
Ottawa, Ontario  
K1Y 2V5

### CIDN:

0837 0200001

### Central Registry:

6725-19-1

## STUDY OF THE HOUSING NEEDS OF THE ENVIRONMENTALLY HYPERSENSITIVE- SOCIO-ECONOMIC/ HEALTH FACTORS

### Objective:

To conduct a survey, sampling various regions of the country, to document the socio-economic characteristics and the perceived housing-related needs of environmentally hypersensitive people who are intending to or who would like to make housing changes.

### Division:

Research Division

### Contractor:

Ekos Research Associates Inc.  
275 Sparks Street  
Suite 801  
Ottawa, Ontario  
K1R 7X9

### CIDN:

1257 1100001  
1257 1101001

### Central Registry:

6717-19



## **SURVEY OF ADVERSE HEALTH EFFECTS OF MOULD EXPOSURE**

### **Objective:**

To support the survey called "The Respiratory Health Effects of Indoor Moulds". This study will look at about 500 houses to identify how much biologically-active material there is in house air and dust. Frequency of cough will also be measured and compared to parental reports. In the final phase, the health of occupants will be assessed as well as the reasons for moisture problems in 100 of the houses.

### **Division:**

Research Division

### **Contractor:**

Health and Welfare Canada  
Bureau of Chemical Hazards  
Environmental Health Centre  
Room 130, Tunney's Pasture  
Ottawa, Ontario  
K1A 0L2

### **CIDN:**

0843 0201001

### **Central Registry:**

6725-19-2

## **A SURVEY OF ELECTRO- MAGNETIC FIELD LEVELS IN CANADIAN HOUSING**

### **Objective:**

To review the state-of-the-art in knowledge and housing research into EMF and prepare an interim report, to conduct a field survey of EMF levels in representative housing, and to prepare a report on the findings with recommendations for remedial measures.

### **Division:**

Research Division

### **Contractor:**

The Planetary Association for  
Clean Energy Inc.  
100 Bronson Avenue  
Suite 1001  
Ottawa, Ontario  
K1T 6G8

### **CIDN:**

1051 0200001

### **Central Registry:**

0427-15

## **A SURVEY OF PROBLEM HOMES OF THE ENVIRONMENTALLY HYPERSENSITIVE**

### **Objective:**

This project will involve a survey of "sick" homes. These are homes that have presented health-related problems to hypersensitive occupants. A protocol will be applied in surveying the homes to identify the indoor air problems, their sources and solutions.

### **Division:**

Research Division

### **Contractor:**

Drerup Armstrong Ltd.  
P.O. Box 130  
Carp, Ontario  
K0A 1L0

### **CIDN:**

1033 1100001

### **Central Registry:**

6717-14

## **TESTING OF BUILD GREEN MATERIALS AND CONVENTIONAL BUILDING MATERIALS**

### **Objective:**

To test recycled construction materials and conventional building materials for their off-gassing characteristics.

### **Division:**

Housing Innovation Division

### **Contractor:**

Ortech International  
2395 Speakman Drive  
Mississauga, Ontario  
L5K 1B3

### **CIDN:**

0992 0300004

### **Central Registry:**

6790-9

#### COGENERATION SYSTEMS IN MULTI-UNIT RESIDENTIAL STRUCTURES.

*Prepared by J.L. Richards & Associates Limited. Prepared for Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.*

The purpose of this report was to determine the viability of the application of cogeneration technology to multi-unit residential structures. The consultant reviewed cogeneration products, determined the characteristics of the thermal and electrical loads in multi-unit residential buildings, developed design concepts and cost budgets for four of the buildings, and assessed the financial worth of these "benchmarks". Ten buildings were analyzed using a conventional industry "level 1" screening assessment. Utility bills provided monthly electrical demand, and electrical and natural gas consumption and costs. A "level 2" (preliminary engineering) assessment was performed on four buildings to provide a range of sizes: 118 units (40kW); 230 units (125kW); 270 units (175kW); and 502 units (275kW).

The viability of cogeneration depends on: the ratio of electrical to fossil fuel costs; the system's installed cost; the building (system) size and occupancy; and the design of the domestic water heating and electrical power systems. Specifically, the study reached the following conclusions:

- The ratio of the electrical-to-fuel cost ranges from 1.8 (propane in the Atlantic) through 4.1 (gas in Ottawa) to 6.3 (oil in the NWT).
- The total installed costs for the four "benchmark" buildings range from \$1440 per kW (largest at 275kW) to \$2250 per kW (smallest at 40kW).
- It is impractical to connect a cogeneration unit to domestic water heaters in individual units; a central domestic water heating system is required.
- The cogeneration unit output was approximately the same as the average daily domestic water thermal requirements and less than 80% of the average monthly electrical demand for the building.

#### ESSAIS SUR LES LIEUX POUR DÉTERMINER DIVERSES CARACTÉRISTIQUES DE MAISONS CANADIENNES AVEC SYSTÈMES DE CHAUFFAGE À AIR PULSÉ.

*Préparé par Scanada Consultants Limited. Préparé pour la Division de la recherche, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1994.*

Ce projet a été réalisé afin de définir diverses caractéristiques de performance des maisons canadiennes chauffées par un système à air pulsé. Des essais ont été faits dans 52 maisons (12 à Halifax, 16 à Ottawa-Hull, 12 à Winnipeg, 12 à Vancouver) au cours de l'hiver 1992-1993. Des essais ont été faits sur les fuites des conduits d'installations de chauffage à l'extérieur de l'enveloppe de bâtiments par suite des essais exécutés aux États-Unis, qui ont montré que les conduits peuvent fuir considérablement. La dépressurisation des sous-sols causée par de forts effets de cheminée en hiver fut étudiée. La pressurisation des pièces par le débit d'air des conduits de distribution d'air chaud a été examinée pour déterminer si une pressurisation importante des pièces puissent accroître l'exfiltration. Nous avons également mesuré les degrés d'humidité du bois et d'humidité relative des maisons en vue d'établir une corrélation. Les niveaux de bioxyde de carbone dans les chambres à coucher ont été observés pour déterminer les concentrations applicables aux maisons canadiennes. La performance des fournaies et des thermostats, ainsi que l'exactitude des impressions des propriétaires quant à l'étanchéité à l'air et l'humidité relative de leur domicile furent évaluées.

Les principales conclusions qui ont été dégagées des essais effectués sont résumées ci-dessous :

- Les fuites de conduits à l'extérieur de l'enveloppe des bâtiments étaient trop minimes pour être quantifiées avec précision dans la plupart des maisons de l'échantillon.
- En moyenne, les niveaux de dépressurisation des sous-sols en hiver gravitaient autour des 5 Pa, sauf dans la région de Vancouver, où ils étaient plus bas. Les appareils d'extraction étaient capables de créer une dépressurisation de plus de 5 Pa dans approximativement 40 % des maisons.
- Les niveaux de dioxyde de carbone à long terme dans les chambres à coucher étaient généralement de 500 à 1 000 ppm (parties par million). Les maxima à court terme étaient supérieurs à 1 000 ppm dans plus de 60 % des maisons testées. L'ASHRAE recommande un maximum de 1 000 ppm pour la réduction des odeurs et polluants.
- L'incidence de pressurisation ou de dépressurisation des pièces par le système de chauffage à air pulsé n'était pas marquée.
- Les essais de thermostats ont révélé que, au moment où le système de chauffage se met en marche, l'écart entre la température de l'air ambiant et la température indiquée par le thermomètre du thermostat fluctue généralement entre +2,5°C et -2,5°C.
- Les impressions des propriétaires concernant les caractéristiques de leur maison, telles que l'étanchéité à l'air et l'humidité, concordaient très rarement avec les valeurs mesurées.

NOTE : Also available in English under the title: *Field Testing of House Characteristics*.

## FIELD TESTING OF HOUSE CHARACTERISTICS.

*Prepared by Scanada Consultants Limited. Prepared for Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.*

This project was undertaken to determine several performance characteristics of forced-air heated houses in Canada. The testing was performed on 52 houses (12 in Halifax, 16 in Ottawa/Hull, 12 in Winnipeg, 12 in Vancouver) during the winter of 1992-93. Heating system duct leakage to the outside of the building envelope was tested in response to tests done in the U.S. that showed substantial duct leakage. Basement depressurization in winter due to strong stack effects was studied. Room pressurization caused by heating system supply ducts was examined in response to concerns that pressurization could increase exfiltration. Wood moisture levels and house relative humidities were also measured to try to demonstrate a link. Bedroom carbon dioxide levels were monitored to see the magnitude of carbon dioxide levels possible in Canadian housing. Furnace and thermostat performance as well as the accuracy of homeowners' perceptions of their houses' airtightness and relative humidity were evaluated.

The main conclusions that were drawn from the testing are summarized below:

- Duct leakage to outside the building envelope was too small to accurately quantify in most of the houses sampled.
- Average winter basement depressurization levels were usually around 5 Pa, although they were lower in the Vancouver area. Exhaust appliances were able to depressurize houses by over 5 Pa in about 40% of the houses.
- Average long term bedroom CO<sub>2</sub> levels were typically in the 500 to 1000 ppm (parts per million) range. Short term peaks were greater than 1000 ppm in over 60% of the houses tested. ASHRAE suggests a 1000 ppm maximum for the control of odours and pollutants.
- There was little evidence of significant pressurization or depressurization of rooms by forced air systems.



## HEATING/CHAUFFAGE

- Thermostat testing showed that when the furnace starts, the difference between the actual room air temperature and the temperature indicated by the thermostat thermometer is normally between +2.5°C and -2.5°C.
- Householder perceptions of house characteristics, such as airtightness and humidity levels, did not correlate well with measured values.

NOTE: Aussi disponible en français sous le titre : *Essais sur les lieux pour déterminer diverses caractéristiques de maisons canadiennes avec systèmes de chauffage à air pulsé.*

### **MONITORING OF AUTOMATIC DIAGNOSTIC SENSORS FOR OIL-FIRED HEATING EQUIPMENT: FINAL REPORT.**

*Prepared by Buchan, Lawton, Parent Ltd. Prepared for the Housing Innovation Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1991.*

Five furnaces in Ottawa, Canada, were retrofitted with a prototype burner which contained a flame quality indicator (FQI). A net stack temperature sensor was installed in the flue of each furnace to monitor heat exchanger fouling when flue temperatures increase over time. A zirconium oxide oxygen sensor was also installed in one furnace to detect deviations in burner performance. Field trials were conducted for a period of one year (two heating seasons), the purpose of which was to assess the practicality of these diagnostic sensors in actual field applications.

Generally, the FQI was observed to perform very well. At all sites the FQI signal tracked carbon monoxide content effectively and generated valid alerts when the CO<sub>2</sub> excursions were large enough and when the burners actually required service. However, the FQI requires further evaluation with regard to initial dulling, over-heating and the effects of fuel oil deliveries. An initial burn-in may be required for each burner fitted with an FQI device. The net stack temperature monitor does have the potential to signal heat exchanger fouling, but the high incidence of sensor failure suggests that a more rugged sensor may be required. More field testing of this diagnostic strategy needs to be conducted. Both field and laboratory tests to date have indicated that the oxygen sensor is too costly and difficult to implement for residential heating applications at this time.

## COMBUSTION VENT CLEARANCES

### Objective:

To examine changing requirements for clearances to combustibles using two (or more) examples.

### Division:

Research Division

### Contractor:

Scanada Consultants Limited  
446 Reynolds Street  
Oakville, Ontario  
L6J 3M4

### CIDN:

1170 0200003

### Central Registry:

6718-16

## DEVELOP DESIGN GUIDELINES FOR HEATING AND VENTILATING SYSTEMS IN MULTI-UNIT RESIDENTIAL BUILDINGS

### Objective:

To improve the installation and operating characteristics of the energy consuming systems in high-rise residential structures.

### Division:

Research Division

### Contractor:

Scanada Consultants Limited  
436 MacLaren Street  
Ottawa, Ontario  
K1A 0M8

### CIDN:

1042 0200001

### Central Registry:

6725-13-2

## INVESTIGATION OF OPERATING CHARACTERISTICS OF HVAC SYSTEMS

### Objective:

To improve understanding of the operating characteristics of high-rise residential HVAC systems leading to better heating and ventilating systems in high-rise residential structures.

### Division:

Research Division

### Contractor:

R.C. Tramblyn  
HVAC Consultant  
2 Sheppard Avenue East  
Suite 200  
North York, Ontario  
M2N 5Y7

### CIDN:

0823 0200002

### Central Registry:

6525-13

## INVESTIGATION OF THE EFFECTS OF GLASS DOORS ON MASONRY FIREPLACE SAFETY

### Objective:

To investigate the effects of glass doors on masonry fireplaces in reducing the amount of smoke spillage under depressurization.

### Division:

Research Division

### Contractor:

Virginia Polytechnic  
Institute and State University  
301 Burrus Hall  
Office of Sponsored Programs  
Blacksburg, Virginia  
24061-0249

### CIDN:

1045 0200001

### Central Registry:

6718-14-1

# HIGH-RISE CONSTRUCTION CONSTRUCTION D'IMMEUBLES DE GRANDE HAUTEUR

## Ongoing Projects/Projets en cours

### CANADA-WIDE INNOVATIVE HIGH-RISE APARTMENT BUILDING DESIGN COMPETITION

#### Objective:

The development of a plan and the implementation of this work with reference to the Canada-wide innovative high-rise apartment building design competition. The competition is designed to integrate new building envelope and building systems technologies in high-rise buildings.

#### Division:

Housing Innovation Division

#### Contractor:

Energy Technology Access  
Group  
110 - 2103 Airport Drive  
Saskatoon, Saskatchewan  
S7L 6W2

#### CIDN:

0840 0300001

#### Central Registry:

6503-32



### Ongoing Projects/Projets en cours

#### **A STUDY TO IDENTIFY COMMERCIALLY FEASIBLE RESIDENTIAL AUTOMATION PRODUCTS AND STRATEGIES**

##### **Objective:**

To organize two workshops in Ottawa to identify salient technical issues as a necessary background for subsequent interviews and to analyse this information in conjunction with subsequent workshops, interviews and focus groups to produce a report.

##### **Division:**

Research Division

##### **Contractor:**

Canadian Automated Building  
Association (CABA)  
1200 Montreal Road  
Building M-20  
Ottawa, Ontario  
K1A 0R6

##### **CIDN:**

1254 020001

##### **Central Registry:**

6702-4

### Ongoing Projects/Projets en cours

#### HOME OWNERSHIP LITERATURE REVIEW

**Objective:**

Prepare an annotated bibliography from various disciplines of at least 200 important pieces of existing literature; produce a synthesis of the literature; review existing research methodologies, survey instruments, etc.

**Division:**

Program Evaluation Division

**Contractor:**

Institute of Urban Studies  
University of Winnipeg  
515 Portage Avenue  
Winnipeg, Manitoba

**CIDN:**

1113 0500001

**Central Registry:**

0429-2

#### HOME OWNERSHIP LITERATURE REVIEW: METHODOLOGY COMPONENT

**Objective:**

Development of a methodology to examine access to and retention of, home ownership tenure through a variety of means: taxation, subsidies and grants and regulations.

**Division:**

Program Evaluation Division

**Contractor:**

Andrej Skaburskis  
985 Old Front Road  
Kingston, Ontario  
K7M 4M2

**CIDN:**

1113 0500002

**Central Registry:**

0429-2

#### HOME OWNERSHIP PROGRAMS PARTICIPANT TRACKING PROJECT

**Objective:**

A methodological report documenting the data collection methods and data elements required for surveying program participants.

**Division:**

Program Evaluation Division

**Contractor:**

SPR Associates Incorporated  
2378 Danforth Avenue  
2nd Floor  
Toronto, Ontario  
M4C 1K7

**CIDN:**

1112 0500001

**Central Registry:**

0429-2

### Ongoing Projects/Projets en cours

#### THE HOUSING NEEDS OF HOMELESS CANADIANS

##### Objective:

To collect data from shelters, hostels, social agencies, private agencies, and public sources in the Toronto area. To interview homeless persons as well as those who work with the homeless.

##### Division:

Research Division  
External Research Program

##### Contractor:

Dr. Thomas Fleming  
Department of Sociology and  
Anthropology  
University of Windsor  
Windsor, Ontario  
N9B 3P4

##### CIDN:

0748 0200001

##### Central Registry:

6585/F36



## HOUSE CONSTRUCTION/HABITATIONS -- CONSTRUCTION

### Ongoing Projects/Projets en cours

#### **BUILDERS WORKSHOP SERIES TECHNICAL TRAINING UPDATE**

**Objective:**

Revise and update the CMHC builders workshop series booklets utilizing the problem-cause-solution format.

**Division:**

Housing Innovation Division

**Contractor:**

Ontario New Home Warranty Program  
North York City Centre  
North East Tower  
5160 Yonge Street, 6th Floor  
North York, Ontario  
M2N 6L9

**CIDN:**

1233 0300001

**Central Registry:**

6505-1

#### **EVOLUTION OF POST WORLD WAR II CANADIAN HOUSING TECHNOLOGY**

**Objective:**

Prepare a manuscript which documents and illustrates the evolution of Canadian housing technology, design and planning during the 1940s, 50s, and 60s.

**Division:**

Housing Innovation Division

**Contractor:**

Clayton Research Associates Limited  
1580 Kingston Road  
Scarborough, Ontario  
M1N 1S2

**CIDN:**

1144 0301001

**Central Registry:**

6701-7

#### **INVESTIGATION OF THE IMPLICATIONS OF ISO 9000 QUALITY SYSTEMS STANDARDS ON THE HOUSING INDUSTRY**

**Objective:**

A research project to investigate the implications of ISO 9000 quality systems standards on the housing industry.

**Division:**

Research Division

**Contractor:**

Industry and Science Canada  
235 Queen Street  
Room 836 East  
Ottawa, Ontario  
K1A 0H5

**CIDN:**

1218 0200001

**Central Registry:**

6703-8

#### **L'EXPERT DE VOTRE LOGEMENT (LNH 6764).**

*Ottawa : Société canadienne d'hypothèques et de logement, 1994.*

La Société canadienne d'hypothèques et de logement (SCHL) est la source d'information sur le logement la plus complète qui soit, que vous soyez un propriétaire, un futur acheteur, un rénovateur, un constructeur, ou une personne handicapée. Cette brochure fait un survol des principaux programmes de la SCHL pour donner un logement aux Canadiens. Elle décrit également l'attachement continu de la SCHL dans les secteurs technologique, économique, environnemental et social de l'industrie du logement. Chaque section donne une liste de publications contenant des renseignements additionnels sur des sujets particuliers. La brochure est imprimée en gros caractères et inclut un message en Braille au dos de la couverture pour répondre aux besoins des personnes handicapées.

NOTE : Also available in English under the title: *Your Housing Experts* (NHA 6763).

#### **YOUR HOUSING EXPERTS (NHA 6763).**

*Ottawa: Canada Mortgage and Housing Corporation, 1994.*

Canada Mortgage and Housing Corporation (CMHC) is Canada's most comprehensive source of information on housing, whether you are a homeowner, a potential buyer, a renovator, a builder, or a person with disabilities. This booklet summarizes some of the many ways that CMHC helps to house Canadians. It also describes CMHC's ongoing commitment to research that improves the technical, economic, environmental and social aspects of housing. Publications which provide additional information on specific topics are listed in each section. The booklet also features large print and includes a message written in Braille on the back of the cover for people with disabilities.

NOTE: Aussi disponible en français sous le titre : *L'Expert de votre logement* (LNH 6764).

## Ongoing Projects/Projets en cours

### BACKGROUND PAPER ON HOME WARRANTY IN CANADA

#### Objective:

Prepare a state-of-the-art paper on Canada's experience with home warranty today and in the past. It will be a factual report, documenting as comprehensively as possible the activities and performance of all warranty program sponsors since their introduction.

#### Division:

Strategic Planning and Policy Development Division

#### Contractor:

Prairie Research Associates Inc.  
111 Pulford Street  
Winnipeg, Manitoba  
R3L 1X8

#### CIDN:

1178 0100001

#### Central Registry:

6860-20

### CANADIANS AND THEIR HOUSING EXPENDITURES, 1978-1992

#### Objective:

To update the temporal housing expenditure analyses completed in the 1990 report, "An Examination of Household Housing Expenditures, 1978-1986." The methodology applied to the 1978, 1982, and 1986 FAMEX micro-data bases is to be extended to the 1992 FAMEX micro-data base. The research will identify if major socio-economic shifts which occurred between 1978 and 1986 continued, and if core housing need grew even more concentrated amongst a group of disadvantaged renter households.

#### Division:

Research Division

#### Contractor:

Mr. Boriss Mazikins  
1025 Grenon Avenue, #1021  
Ottawa, Ontario  
K2B 8S5

#### CIDN:

1221 0200001

#### Central Registry:

6620-17-2

### (HIFE) AND SURVEY OF SHELTER COST

#### Objective:

To conduct a survey of shelter cost as a supplement to the March 1991 Labour Force Survey.

#### Division:

Statistical Services Division

#### Contractor:

Statistics Canada  
Household Surveys Division  
5th Floor, Jean Talon Building  
Tunney's Pasture  
Ottawa, Ontario  
K1A 0T6

#### CIDN:

0770 0401001

#### Central Registry:

7050-4

### HOUSING PEOPLE IN MODERN INDUSTRIAL PARKS

#### Objective:

Will develop knowledge that may prove useful to planners, industrial development commissions, and housing providers.

#### Division:

Research Division  
External Research Program

#### Contractor:

Ms. Jill L. Grant  
Nova Scotia College of Art and Design  
5163 Duke Street  
Halifax, Nova Scotia  
B3J 3J6

#### CIDN:

1088 0200001

#### Central Registry:

6585/G064-1

### INTERNATIONAL YEAR OF THE FAMILY PUBLICATION

#### Objective:

Preparation of three housing profiles for an upcoming International Year of the Family publication.

#### Division:

Statistical Services Division

#### Contractor:

Statistics Canada  
D274 Jean Talon Building  
Tunney's Pasture  
Ottawa, Ontario  
K1A 0T6

#### CIDN:

1108 0400008

#### Central Registry:

7050-7



## **MAXIMIZATION OF COMMUNITY BENEFITS DERIVED FROM HOUSING PROGRAMS IN REMOTE COMMUNITIES**

### **Objective:**

To carry out a study of the maximization of community benefits derived from housing programs in remote communities.

### **Division:**

Strategic Planning and Policy Development Division

### **Contractor:**

Terpstra and Associates Ltd.  
324 Hamilton River Road  
P.O. Box 10, Station "A"  
Goose Bay, Newfoundland  
A0P 1S0

### **CIDN:**

0798 0100001

### **Central Registry:**

6850-2

## **PRESTON DEMONSTRATION**

### **Objective:**

To determine the viability of a self-built housing assistance option in an urban setting.

### **Division:**

Senior Vice-President's Office  
Policy, Research and Communications

### **Contractor:**

The Nova Scotia Department of Housing and Consumer Affairs  
Alderney Gate  
40 Alderney Drive, 5th Floor  
P.O. Box 815  
Dartmouth, Nova Scotia  
B2Y 3Z3

### **CIDN:**

1011 0600001

### **Central Registry:**

8390/2200-14

## **PRODUCTION OF DOMICILE MAGAZINE**

### **Objective:**

Development and publication of a 32-page consumer magazine with articles on key housing issues.

### **Division:**

Housing Innovation Division

### **Contractor:**

Ransden & Associates Inc.  
137 Highbourne Road  
Toronto, Ontario  
M5P 2J8

### **CIDN:**

1038 0300007

### **Central Registry:**

6505-28

## **PROCEEDINGS OF THE HABITAT 94 CONFERENCE**

### **Objective:**

To support production of bilingual proceedings of the Habitat 94 conference - a joint conference between the Canadian Institute of Planners and the International Federation of Housing and Planning.

### **Division:**

Research Division

### **Contractor:**

Canadian Institute of Planners  
541 Sussex Drive  
2nd Floor  
Ottawa, Ontario  
K1N 6Z6

### **CIDN:**

1295 0200002

### **Central Registry:**

6855-2-3

## **ROLE OF HOUSING IN AN ENABLING SOCIETY**

### **Objective:**

Analyze and discuss the various roles housing policy can play in the context of the enabling society model. Propose various ways housing

policies can be used to promote the philosophy of the enabling society while elaborating on CMHC's role in this regard.

### **Division:**

Strategic Planning and Policy Development Division

### **Contractor:**

Ekos Research Associates  
275 Sparks Street  
Suite 801  
Ottawa, Ontario  
K1R 7X9

### **CIDN:**

1006 0100001

### **Central Registry:**

6865-11

## **TRI-COUNTRY CONFERENCE 1994**

### **Objective:**

To support the production of 12 high quality policy research papers addressing the broader influences and possible directions for housing policy in each of Canada, the U.S. and the U.K. and to ensure the effective exchange of these research findings among academics and practitioners from each of the three countries.

### **Division:**

Research Division

### **Contractor:**

Fannie Mae  
Office of Housing Policy Research  
3900 Wisconsin Avenue N.W.  
Washington, D.C.  
20016

### **CIDN:**

1206 0200001

### **Central Registry:**

6855-1

## Ongoing Projects/Projets en cours

### EXAMINATION OF MECHANISMS TO FACILITATE THE PRODUCTION OF AFFORDABLE HOUSING

**Objective:**

The measures used by regional and municipal governments will be examined to assess their effectiveness to the achievement of goals for the production of affordable housing, their levels of acceptance by local taxpayers, municipal officials, the private development and housing sectors, the non-profit housing sector, and organizations representing disadvantaged groups.

**Division:**

Research Division

**Contractor:**

Richard Drdla Associates  
415-1/2 Wellesley Street East  
Toronto, Ontario  
M4X 1H5

**CIDN:**

0892 0200001

**Central Registry:**

6600-1

### SHELTER AFFORDABILITY AND HOUSING NEEDS OF CANADIAN FOOD BANK CLIENTS

**Objective:**

Will examine the relationship between food banks and housing, and produce a profile of the typical food bank client in Winnipeg, Manitoba, in regard to shelter needs and other socio-demographic variables.

**Division:**

Research Division  
External Research Program

**Contractor:**

Professor Jeff Sloan  
Manitoba Nursing Research  
Institute  
Faculty of Nursing  
University of Manitoba  
Winnipeg, Manitoba  
R3T 2N2

**CIDN:**

1099 0200001

**Central Registry:**

6585/S087

### A STUDY OF THE RELIABILITY OF MEASUREMENT METHODS OF HOUSING AFFORDABILITY PROBLEMS

**Objective:**

To examine problems of measurement of shelter cost-to-income ratios. Rent and income data provided by tenants through mail surveys were compared to administrative records to identify the key sources of confusion or error in data reporting.

**Division:**

Program Evaluation Division

**Contractor:**

Ekos Research Associates  
275 Sparks Street  
Suite 801  
Ottawa, Ontario  
K1R 7X9

**CIDN:**

1008 0502001

**Central Registry:**

0427-18

## HOUSING AND IMMIGRATION LOGEMENT ET IMMIGRATION

Completed Reports/Rapports terminés

### LES CHOIX DE LOGEMENT DES IMMIGRANTS, 1986.

*Rédigé par Clayton Research Associates Limited. Rédigé pour la Division de la recherche, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1994.*

Cette étude met en lumière les choix de logement des immigrants et des non-immigrants d'après une analyse des données non publiées du recensement du Canada de 1986. L'analyse porte plus particulièrement sur les taux de chef et les tailles de ménage moyens par âge de même que sur le mode d'occupation et les choix de types de logement dans l'ensemble du Canada et, à une moindre échelle, dans les trois principales régions métropolitaines, soit Toronto, Montréal et Vancouver. Elle se penche également sur les facteurs qui influencent les divers choix de logement des immigrants, par exemple le lieu de naissance, la période d'immigration et le revenu.

NOTE : Also available in English under the title: *Immigrant Housing Choices, 1986.*

### IMMIGRANT HOUSING CHOICES, 1986.

*Prepared by Clayton Research Associates Limited; Project Manager: Patricia Arsenault. Prepared for Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.*

This report highlights differences in housing choices between immigrants and non-immigrants based on an analysis of unpublished 1986 Census of Canada data. The analysis focuses on age-specific average household sizes and household headship rates, as well as tenure and dwelling type choices, for Canada as a whole, and to a lesser degree, the three major metropolitan areas of Toronto, Montreal and Vancouver. Variations in housing choices among immigrants due to such factors as place of birth, period of immigration and income are also examined.

NOTE: Aussi disponible en français sous le titre : *Les choix de logement des immigrants, 1986.*



## Ongoing Projects/Projets en cours

### IMMIGRANT HOUSING CHOICES, 1991

#### Objective:

To update and extend the study of immigrant housing choices recently completed for CMHC. The study will describe differences between the housing choices of immigrants and non-immigrants in 1991 and compare findings to those of the previous study. 1986 and 1991 census data will be used to trace changes over time in the behaviour of individual immigrant cohorts. Through focus groups and statistical analysis of 1991 census data, the research will attempt to identify factors underlying observed differences between immigrants and non-immigrants.

#### Division:

Research Division

#### Contractor:

Lapointe Consulting Inc.  
311 Markham Street  
Toronto, Ontario  
M6G 2K8

#### CIDN:

0854 0201001  
0854 0200002

#### Central Registry:

6620-24

### SURVEY OF ISSUES AFFECTING RACIAL AND ETHNIC MINORITIES IN THE HOUSING SECTOR

#### Objective:

To identify the role the Corporation could productively plan, as well as specific initiatives it could sponsor, in assisting in the implementation of the Canadian Multiculturalism Act of 1988 in the area of housing and living environments.

#### Division:

Strategic Planning and Policy  
Development Division

#### Contractor:

Ekos Research Associates Inc.  
275 Sparks Street  
Suite 801  
Ottawa, Ontario  
K1R 7X9

#### CIDN:

1067 0100001

#### Central Registry:

6865-10

### **CONSULTATION PAPER ON EXPORT STRATEGIES FOR CANADA'S HOUSING INDUSTRY.**

*Prepared for the Housing Export Strategies Task Force; Canada Mortgage and Housing Corporation; Industry Canada; Department of Foreign Affairs and International Trade; National Research Council; and Natural Resources Canada. Ottawa: Canada Mortgage and Housing Corporation, 1994.*

The Honourable David C. Dingwall, Minister responsible for Canada Mortgage and Housing Corporation, recently announced that a federal interdepartmental task force had been formed to develop, in consultation with the housing industry, export strategies that will help Canadian companies to compete successfully in the international marketplace and create jobs. This paper has been prepared to support consultations that are being undertaken as a first step toward the development of these strategies. It contains a cross-section of ideas that participants may wish to take into account during the consultation process and summarizes views that have been expressed by representatives of Canadian government departments and agencies, non-governmental organizations and firms engaged in commercial endeavours abroad.

The paper is intended to provide the point of departure and a focus for discussions that are expected to address the gamut of international trade issues as well as possible ways to address them. The document outlines potential subjects for discussion and identifies factors that might be worth considering. It does not, however, attempt to set the agenda, define the boundaries of discussion or anticipate any conclusions that might flow from the consultations, as these are all matters for discussion. Readers are invited to contribute to the formulation of the Canadian housing industry's export strategies by submitting their views on matters raised in the paper and on any additional subjects that they consider relevant.

NOTE: Aussi disponible en français sous le titre : *Document de consultation en vue de l'élaboration de stratégies d'exportation pour le secteur canadien de l'habitation.*

### **DOCUMENT DE CONSULTATION EN VUE DE L'ÉLABORATION DE STRATÉGIES D'EXPORTATION POUR LE SECTEUR CANADIEN DE L'HABITATION.**

*Préparé pour le Groupe d'étude des stratégies d'exportation relatives à l'habitation; Société canadienne d'hypothèques et de logement; Ministère de l'Industrie; Ministère des Affaires étrangères et du Commerce international; Conseil national de recherches; et Ministère des Ressources naturelles. Ottawa : Société canadienne d'hypothèques et de logement, 1994.*

Monsieur David C. Dingwall, ministre responsable de la Société canadienne d'hypothèques et de logement, vient d'annoncer la création d'un groupe d'étude interministériel chargé d'élaborer, en consultation avec le secteur de l'habitation, des stratégies d'exportation visant à aider les entreprises canadiennes à percer le marché international et à créer des emplois. Ce document vise à servir de base aux consultations qui constituent la première étape en vue de l'élaboration de ces stratégies. Il présente un échantillon des idées sur lesquelles les participants voudront peut-être se pencher et résume également les points de vue exprimés par les représentants des ministères et organismes du gouvernement fédéral, des organismes non gouvernementaux et des entreprises faisant des affaires à l'étranger.

Le document servira de point de départ et d'orientation pour les discussions qui devraient porter sur toute la gamme des problèmes relatifs au commerce extérieur ainsi que sur les façons possibles de les régler. Il propose des sujets de discussion et mentionne les facteurs qu'il serait utile de considérer. Cependant, il n'essaie ni d'établir l'ordre du jour des consultations, ni de limiter les discussions, ni de prévoir les conclusions qui pourraient découler des consultations, car tout est sujet à discussion.

Le lecteur est incité à contribuer à l'élaboration de stratégies d'exportation pour le secteur canadien de l'habitation en faisant valoir ses points de vue sur les questions soulevées dans le document et sur tout autre sujet qu'il juge pertinent.

NOTE : Also available in English under the title: *Consultation Paper on Export Strategies for Canada's Housing Industry.*

## **HOUSING OPPORTUNITIES UNDER NAFTA: PROJECT REPORT.**

*Prepared by S. Beatty, J. Erling and D. McColm, Peat Marwick Stevenson & Kellogg Management Consultants. Prepared for Strategic Planning and Policy Development Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1993.*

This study identifies the key issues and areas of opportunity in the Mexican housing market as a result of increased Canadian access afforded by the North American Free Trade Agreement (NAFTA). The focus of the inquiry is on three broad sectors that relate to housing: manufacturers of building products and materials; providers of construction and related services; and financial service institutions.

The report examines the general economic climate in Mexico as well as trade patterns in the building products sector. A profile of the Mexican housing market is presented with respect to price, buyer income and volumes. Some continuing problems that inhibit the proper functioning of the housing market are outlined. The report also discusses construction methods used in Mexico and comments on their implications for Canadian export opportunities. For example, the Mexican preference for masonry may mean that Canadian technologies for multiple-unit dwellings (which often call for concrete and masonry) are more transferable than technologies for single-family dwellings which generally rely on wood.

The consultants suggest that excellent opportunities exist for Canadian firms in the production of pre-fabricated building systems, the provision of capital-intensive goods and goods that take advantage of Canadian technical expertise and skilled personnel. The financial services sector also represents a potential investment opportunity, particularly for the banking sector. Canadian banks, through their Mexican affiliates, could provide mortgage credit to Mexican consumers purchasing homes. CMHC could also assist Mexican authorities in implementing new financial products such as mortgage insurance and mortgage-backed securities.

### CANADIAN HOUSING PRODUCTS AND SERVICES FOR CHINA

**Objective:**

To identify potential opportunities for Canadian manufactured products and services for the Chinese housing market.

**Division:**

Housing Innovation Division

**Contractor:**

McGill University  
School of Architecture  
815 Sherbrooke Street West  
Montreal, Quebec  
H3A 2K6

**CIDN:**

1263 0300001

**Central Registry:**

4380-21

### DEVELOPMENT OF A RESEARCH METHOD FOR PROPOSED STUDIES OF THE EXPORT CAPABILITIES OF CANADA'S HOUSING INDUSTRY

**Objective:**

To develop a method that can be used to research and represent in publishable form, Canada's capacity to respond to foreign demand for new housing and external requirements for improving existing dwellings.

**Division:**

International Relations  
Division

**Contractor:**

Various contractors

**CIDN:**

1293 0900001  
1293 0900003  
1293 0900004  
1293 0900005

**Central Registry:**

4380-21

### INVESTIGATION INTO COMMERCIAL OPPORTUNITIES FOR CANADA'S HOUSING SECTOR IN CENTRAL AND EASTERN EUROPE

**Objective:**

To provide a primer to describe the essential features of Central and Eastern European markets, identify housing needs, provide guidance on how to strategically approach Central and Eastern European markets, indicate Canadian and foreign resources that are potentially available to Canadian providers of housing technology.

**Division:**

International Relations  
Division

**Contractor:**

Canadian Urban Institute  
2nd Floor  
West Tower City Hall  
Toronto, Ontario  
M5H 2N1

**CIDN:**

0955 0900002

**Central Registry:**

4380-16



## Ongoing Projects/Projets en cours

### ALTERNATIVES FOR THE PLANNING AND DESIGN OF HOUSING IN ST. JOHN'S

#### Objective:

To explore alternatives for the planning and design of new low and medium density housing in St. John's, Newfoundland.

#### Division:

Research Division  
External Research Program

#### Contractor:

Robert Mellin, Architect  
89 Barnes Road  
St. John's, Newfoundland  
A1C 3X5

#### CIDN:

1095 0200001

#### Central Registry:

6585/M108

### DESIGNING CAPACITY FOR INCREMENTAL CHANGE

#### Objective:

This study will investigate how design reserve can be built into new starter homes in order to promote improvisational conversions, extensions and additions that would ensure good fit through time between house and household.

#### Division:

Research Division  
External Research Program

#### Contractor:

Sevag Pogharian  
Sevag Pogharian Design  
505-2255 St-Mathieux Street  
Montreal, Quebec  
H3H 2H6

#### CIDN:

1097 0200001

#### Central Registry:

6585/P055

### HABITATION ET FLEXIBILITÉ AU CANADA : BILAN 1991

#### Objet :

Construire une grille d'analyse permettant de dresser une typologie des solutions apportées par les architectes; et faire un rapport de synthèse proposant un bilan global des perspectives de résolution du problème de flexibilité dans un projet d'habitation.

#### Division :

Division de la recherche  
Programme de subventions de recherche

#### Contractant :

Annie Chelin  
5780, rue Hutchison  
Outremont (Québec)  
H2V 4B6

#### NIC :

0911 0200001

#### Numéro de la gestion des documents :

6565/C58

### IEA FUTURE BUILDINGS FORUM

#### Objective:

To write a report for the IEA Future Buildings forum.

#### Division:

Research Division

#### Contractor:

Facing the Future  
15003 - 56th Avenue  
Edmonton, Alberta  
T6H 5B2

#### CIDN:

1061 0200005

#### Central Registry:

6713-8

### PAPER FOR FUTURE BUILDINGS FORUM WORKSHOP "THE CONCEPT OF ANTICIPATION BUILDING DESIGN"

#### Objective:

To prepare a paper in conjunction with P. Russell entitled "The Concept of Anticipation Building Design" to be presented at the Future Buildings Forum 25-28 June 1993.

#### Division:

Research Division

#### Contractor:

Mr. Graeme Consiglio  
59-1900 Marquis Avenue  
Gloucester, Ontario  
K1J 8J2

#### CIDN:

1061 0200002

#### Central Registry:

6715-8

**PLANNING FOR TELEWORK  
AND HOMEBASED EMPLOY-  
MENT; A CANADIAN SURVEY  
ON INTEGRATING WORK  
INTO RESIDENTIAL  
ENVIRONMENT**

**Objective:**

Investigate the role of the home and neighbourhood for home-based workers; and the implications for the planning and design of homes and communities.

**Division:**

Research Division

**Contractor:**

University of British Columbia  
Research Services  
2194 Health Sciences Mall  
Room 323  
Vancouver, British Columbia  
V6T 1Z3

**CIDN:**

1010 0200001

**Central Registry:**

6855-2

**VILLE ST-LAURENT  
REVISITED: WARTIME  
HOUSING AND ARCHITEC-  
TURAL CHANGE, 1942-92**

**Objective:**

To study a solution offered by the wartime housing effort and to test its lessons for today's housing problems.

**Division:**

Research Division  
External Research Program

**Contractor:**

Dr. Annemari Adams  
School of Architecture  
McGill University  
815 Sherbrooke Street West  
Montreal, Quebec  
H3A 2K6

**CIDN:**

1083 0200001

**Central Registry:**

6585/A042

# HOUSING FORECASTING AND DEMAND PRÉVISION ET DEMANDE DE LOGEMENTS

## Completed Reports/Rapports terminés

### ESTABLISHING LOCAL HOUSING MARKET INTERRELATIONSHIPS: FINAL REPORT.

*Prepared by the Conference Board of Canada, Custom Economic Services. Prepared for Market Analysis Centre, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1993 (4 volumes).*

Canada Mortgage and Housing Corporation (CMHC) provides quarterly analyses and forecasts at the local market level for several economic and housing variables. Accurate analyses and forecasts at the local market level necessitate extensive knowledge of how and when the different components making up the local economy interact with each other. As a result of increased demands for accurate analyses of local markets, the Conference Board, on behalf of CMHC, conducted research to establish the interrelationships between different sectors of the local economies. The primary objective of the analysis was to identify, compare, explain and document the most suitable methodologies to establish housing market interrelationships at the census metropolitan area (CMA) level and to test their forecasting ability.

In order to determine and test the consistencies of the interrelationships and selected methodology, the research was conducted for four local market areas: Toronto, St. John's, Quebec City and Edmonton. Various tests and estimation techniques were applied to the local markets to determine whether there were any consistencies between the interrelationships and the methodologies used. Based on the findings of the regional analyses, recommendations were presented (where possible) on the most suitable and effective methods for CMHC's local market analysts to use in establishing local market interrelationships.

Accurate analyses and forecasts of the local market require an understanding of the structure and the interrelationships between segments of the economy. In order to achieve this understanding, structural econometric estimation was undertaken for new, resale and rental housing. Some of the estimations were successful, particularly in the resale market. However, results were disappointing in the new and rental markets. ARIMA analysis was undertaken for housing starts, MLS sales, MLS listings and MLS price in order to complement the econometric estimations. Lack of observations, "zero" values, shortness of data series and instability of the data all caused severe problems in the ARIMA analysis.

The study consists of a final report and three appendices:

- **Appendix B1**

Structural Econometric Models - Regression Results: New Housing.

- **Appendix B2**

Structural Econometric Models - Regression Results: Resale and Rental Housing.

- **Appendix C**

Mnemonic Documentation.

**CHILD NOMADS: SHARED  
PARENTING AND DUAL  
RESIDENCE**

**Objective:**

A literature review, an empirical study and an analysis of the findings and assessment of the overall magnitude and possible longer term implications of joint custody agreements both in terms of potential housing demand and the spatial and design considerations.

**Division:**

Centre for Future Studies  
in Housing and Living  
Environments  
Experts in Residence Program

**Contractor:**

Mr. Martin Wexler  
45, rue Chesterfield  
Westmount, Quebec  
H3Y 2M4

**CIDN:**

1015 0201001

**Central Registry:**

6855-5

**HOUSING DEMAND AND  
CONSUMER PREFERENCES  
IN THE 1990's**

**Objective:**

To identify in more detail each target group's goals and regional housing preferences for the 1990's.

**Division:**

Market Analysis Centre

**Contractor:**

Environics Research Group  
Limited  
45 Charles Street East  
Toronto, Ontario  
M4Y 1S2

**CIDN:**

0995 0100001

**Central Registry:**

6905-10



## Ongoing Projects/Projets en cours

### ALTERNATIVE CONSTANT-QUALITY PRICE INDEXES FOR MODEST DWELLING, KITCHENER-WATERLOO

**Objective:**

Investigate house price change, in order to provide evidence on whether or not a variant of the standard hedonic method or the standard repeat sales method would provide a relatively inexpensive method for the estimation of valid, constant quality, house price indexes.

**Division:**

Research Division  
External Research Program

**Contractor:**

Mr. Richard E. Goy  
53 Speedvale Avenue West  
Guelph, Ontario  
N1H 1J6

**CIDN:**

1087 0200001

**Central Registry:**

6585/G069

### DEMOGRAPHIC CHANGE IN THE HOUSING MARKET IN CANADA

**Objective:**

To deepen our understanding of demographic effects on housing markets and to identify future policy problems that might emerge in the ownership and rental markets.

**Division:**

Research Division  
External Research Program

**Contractor:**

Mr. Arthur Hosios  
University of Toronto  
Institute for Policy Analysis  
707 - 140 Saint George Street  
Toronto, Ontario  
M5S 2T4

**CIDN:**

1091 0200001

**Central Registry:**

6585/H055-1

### MATCHING BUYERS AND SELLERS IN THE RESALE HOUSING MARKET

**Objective:**

Matching buyers and sellers in the resale housing market.

**Division:**

Research Division  
External Research Program

**Contractor:**

Mr. Christopher T. Ragan  
Department of Economics  
McGill University  
855 Sherbrooke Street West  
Montreal, Quebec  
H3A 2T7

**CIDN:**

1098 0200001

**Central Registry:**

6585/R065

### **INFRASTRUCTURE COSTS ASSOCIATED WITH CONVENTIONAL AND ALTERNATIVE DEVELOPMENT PATTERNS**

**Objective:**

To carry out the study entitled: "Infrastructure Costs Associated with Conventional and Alternative Development Patterns".

**Division:**

Research Division

**Contractor:**

Essiambre Phillips Desjardins  
1900 City Park Drive  
Suite 206  
Gloucester, Ontario  
K1J 1A3

**CIDN:**

1193 0200001

**Central Registry:**

6665-21

### **ON-SITE SERVICING FOR RURAL CO-HOUSING**

**Objective:**

Analyze the 4 mechanical systems required for the combined servicing of a group of 30 clustered dwellings in a rural context. The four essential systems for servicing housing are sewage treatment, water supply, storm water control, and heating.

**Division:**

Research Division  
External Research Program

**Contractor:**

Mr. John A. Zsolt  
Zsolt & Associates Ltd.  
Environmental Design and Planning  
R.R.#1, Site L, Box 56  
Brechin, Ontario  
L0K 1B0

**CIDN:**

1102 0200001

**Central Registry:**

6585/Z007

### **A SYNTHESIS OF TECHNICAL RESEARCH AND ITS APPLICATION IN LINEAR INFRASTRUCTURE RENEWAL**

**Objective:**

Determine technical causes for current failures in existing linear infrastructure; predict future failures in these systems; identify and allocate responsibilities for repairs to damaged systems; evaluate repair materials; deliver repair systems in a locally acceptable manner.

**Division:**

Research Division

**Contractor:**

CH2M Hill Engineering Limited  
1755 West Broadway  
Suite 101  
Vancouver, British Columbia  
V6J 4S5

**CIDN:**

0695 0200001

**Central Registry:**

6715-7

Ongoing Projects/Projets en cours

**DEVELOPMENT OF  
COMMERCIALLY VIABLE  
CONCEPTS AND A DESIGN  
FOR A RESIDENTIAL  
FRAMING SYSTEM FOR A  
MONOCOQUE HOUSE**

**Objective:**

The development of commercially viable engineered structural concepts and a design for a monocoque framing system for residential structures which can be adopted by home builders for the construction of houses on unstable soils; monitoring of the demonstration of the system in a house construction project and a report of the results of the work for CMHC.

**Division:**

Housing Innovation Division

**Contractor:**

Gower, Yeung & Associates  
Ltd.  
615 Eighth Street  
Suite 201  
New Westminster  
British Columbia  
V3M 3S3

**CIDN:**

0657 0300001

**Central Registry:**

6796-4

**MONOCOQUE CAVITY RIGID  
PANEL FOR WALL AND ROOF  
CONSTRUCTION**

**Objective:**

To finalize the design of monocoque wall and roof panels and the locking joint assemblies for these panels, and produce prototype wall and roof panels for testing.

**Division:**

Research Division

**Contractor:**

Ray-Co-Tech Inc.  
30, rue Des Frenes  
Bromont (Québec)  
J0E 1L0

**CIDN:**

1270 0200001

**Central Registry:**

6521-27/93

**SCALE MODEL OF  
MONOCOQUE HOUSE**

**Objective:**

To construct a scale model of a monocoque framed house.

**Division:**

Housing Innovation Division

**Contractor:**

Anthony S. Wilson  
Architect  
817 Baker Drive  
Coquitlam, British Columbia  
V3J 6W5

## Ongoing Projects/Projets en cours

### TITLE INSURANCE IN CANADA

#### Objective:

Compare the various land title insurance systems and examine the effectiveness of such insurance. Prepare a questionnaire to direct the survey and contact provincial law reform commissions and provincial real property sections of the Canadian Bar Association.

#### Division:

Research Division  
External Research Program

#### Contractor:

D. Shuler  
Shuler & Dickinson  
Barristers & Solicitors  
Box 1600  
Banff, Alberta  
T0L 0C0

#### CIDN:

0090 0200001

#### Central Registry:

6585/S58



## Ongoing Projects/Projets en cours

### **ASSESSMENT OF THE CAPACITY TO USE STOCHASTIC MODEL IN BUILDING LIFE-CYCLE COSTING**

#### **Objective:**

The study is an evaluation of how well easily collected, financial data reported on audited statements and supporting documentation about housing that is targeted towards low and moderate income households can be used in conjunction with well known probabilistic models to estimate long term maintenance, repair and replacement costs.

#### **Division:**

Research Division  
External Research Program

#### **Contractor:**

Aron Spector  
Ark Research Associates  
165 Hinton Avenue North  
Ottawa, Ontario  
K1Y 0Z9

#### **CIDN:**

1100 0200001

#### **Central Registry:**

6585/5008-7

### **PERFORM A CRITICAL REVIEW AND MARKET NEEDS EVALUATION FOR THE CMHC LIFE-CYCLE COSTING SOFTWARE**

#### **Objective:**

Perform a technical and market analysis of the life-cycle costing software; conduct a review of characteristics and industry requirements for a modeling and information system for low-rise housing.

#### **Division:**

Research Division

#### **Contractor:**

Richard Kadulski  
Architect  
#208 - 1280 Seymour Street  
Vancouver, British Columbia  
V6B 3N9

#### **CIDN:**

1064 0200002

#### **Central Registry:**

0240/N1-5

#### **A LITERATURE AND CODE REVIEW ON DAYLIGHTING IN HOUSING**

##### **Objective:**

To review the literature and the National Building Code of Canada on the treatment of daylighting as a factor in planning and design of housing in northern latitude countries.

##### **Division:**

Research Division

##### **Contractor:**

James Love Consultants  
1737 2nd Avenue N.W.  
Calgary, Alberta  
T2N 0G3

##### **CIDN:**

1214 1100003

##### **Central Registry:**

6717-18

#### **REVIEW OF LIGHTING AND HUMAN HEALTH**

##### **Objective:**

To review the biological effects of light (from the ultraviolet to the infrared) with emphasis on the effects (biochemical, physiological, etc.) on human health.

##### **Division:**

Research Division

##### **Contractor:**

Dr. Benjamin Rusak &  
Associates  
1976 Beech Street  
Halifax, Nova Scotia  
B3H 4B8

##### **CIDN:**

1214 1100001

##### **Central Registry:**

6717-18

## MANUFACTURED HOUSING/HABITATIONS USINÉES

### Ongoing Projects/Projets en cours

#### **A STRUCTURAL ANALYSIS OF THE CANADIAN AND INTERNATIONAL MANUFACTURED HOUSING INDUSTRY**

##### **Objective:**

To enhance the international competitiveness of the Canadian Manufactured Housing Industry.

##### **Division:**

Research Division

##### **Contractor:**

Canadian Manufactured  
Housing Institute  
150 Laurier Avenue West  
Suite 200  
Ottawa, Ontario  
K1P 5J4

##### **CIDN:**

1290 0200001

##### **Central Registry:**

0190-78-10

### ATLANTIC MOISTURE MANUAL

**Objective:**

To produce a book for builders and renovators that looks at common moisture problems in housing for Atlantic Canada and suggests appropriate construction detailing to reduce these problems.

**Division:**

Housing Innovation Division

**Contractor:**

Designed Solutions Limited  
P.O. Box 4230  
Dieppe, New Brunswick  
E1A 6E7

**CIDN:**

0978 0300001

**Central Registry:**

6506-20

### COST/BENEFIT STUDY OF DRY LUMBER

**Objective:**

To carry out a cost/benefit study of dry lumber.

**Division:**

Housing Innovation Division

**Contractor:**

ADI Limited  
Suite 407, 1133 Regent Street  
Box 44, Station "A"  
Fredericton, New Brunswick  
E3B 4Y2

**CIDN:**

1209 0300001

**Central Registry:**

6506-19

### ENHANCE THE EMPTIED COMPUTER PROGRAM AND DEVELOP A MANUAL

**Objective:**

Development of a tutorial manual will develop an understanding of the process involved, the method of calculation, and will provide illustrative examples of the application of the EMPTIED program in predicting moisture accumulation in walls and condensation on windows. Guidelines for considering the effects of solar radiation and frost action will be included.

**Division:**

Housing Innovation Division

**Contractor:**

Handegord and Company  
Limited  
185 Strathcona Road S.W.  
Calgary, Alberta  
T3H 1X9

**CIDN:**

1107 0300001  
1107 0301001

**Central Registry:**

6793-24-4

### HYGROMETER CALIBRATION PROCEDURE

**Objective:**

To investigate the accuracy of hygrometers available to householders and to develop a hygrometer calibration technique.

**Division:**

Research Division

**Contractor:**

Instruscience Limited  
484 Gladstone Avenue  
Ottawa, Ontario  
K1R 5N8

**CIDN:**

0993 0201001

**Central Registry:**

6730-4



## **MOISTURE PIN PLACEMENT WORK**

### **Objective:**

To install moisture pins in the roof sheathing of the attic of building "A" of the Corporation's National Office building complex.

### **Division:**

Research Division

### **Contractor:**

Scanada Consultants Limited  
436 MacLaren Street  
Ottawa, Ontario  
K2P 0M8

### **CIDN:**

0947 0200001

### **Central Registry:**

6730-12

## **RAIN CONTROL AND WIND DRIVEN RAIN**

### **Objective:**

To carry out work aimed at producing guidelines for the testing and commissioning of pressure equalized rainscreen walls.

### **Division:**

Housing Innovation Division

### **Contractor:**

Quirouette Building Envelope  
Specialists  
18 Crispin Private  
Ottawa, Ontario  
K1K 2T8

### **CIDN:**

1123 0304002  
1123 0300004

### **Central Registry:**

6793-21-5

## **WIND TUNNEL EXPERI- MENTS SIMULATING WIND DRIVEN RAIN**

### **Objective:**

Study the density of rain impact for three common building shapes and with three architectural features that are designed to minimize rain impact on the buildings.

### **Division:**

Housing Innovation Division

### **Contractor:**

The Boundary Layer Wind  
Tunnel Laboratory  
University of Western Ontario  
Room 271  
Stevenson Lawson Building  
London, Ontario  
N6A 5B8

### **CIDN:**

1123 0304001  
1123 0300001

### **Central Registry:**

6793-21-3

# MORTGAGES AND HOUSING FINANCE HYPOTHÈQUES ET LOGEMENT — FINANCES

## Ongoing Projects/Projets en cours

### EVALUATION OF THE CHattel LOAN INSURANCE PROGRAM (CLIP)

**Objective:**

Data collection phase of the surveys for the evaluation of the CLIP program and to carry out a study of lender administrative costs.

**Division:**

Program Evaluation Division

**Contractor:**

Ekos Research Associates  
275 Sparks Street  
Suite 801  
Ottawa, Ontario  
K1R 7X9

**CIDN:**

1174 0500001

**Central Registry:**

0436-8

### FUNDING FOR REVERSE MORTGAGES - ASSESSMENT OF CONCEPTUAL FUNDING ALTERNATIVES

**Objective:**

A report identifying and analyzing how reverse mortgages could be funded in a viable, credible manner from both a number of individual funding sources as well as across the range of such funding sources.

**Division:**

Strategic Planning and Policy  
Development Division

**Contractor:**

Ernst & Young Management  
Consultants  
Ernst & Young Tower  
Toronto-Dominion Centre  
P.O. Box 251  
Toronto, Ontario  
M5K 1J7

**CIDN:**

0999 0100001

**Central Registry:**

6625-27

### REVERSE MORTGAGE MORTALITY SWAP ARRANGEMENTS

**Objective:**

To assist CMHC in assessing whether or not a mortgage insurer could manage the risk of prolonged life expectancy associated with insuring reverse mortgages by potentially swapping this risk with other financial institutions such as life insurance companies.

**Division:**

Strategic Planning and Policy  
Development Division

**Contractor:**

Ernst & Young Management  
Consultants  
Ernst & Young Tower  
Toronto-Dominion Centre  
P.O. Box 251  
Toronto, Ontario  
M5K 1J7

**CIDN:**

1103 0100002

**Central Registry:**

6625-28

# MUNICIPAL GOVERNMENT AND FINANCE ADMINISTRATION MUNICIPAL ET FINANCES

## Completed Reports/Rapports terminés

### THE IMPLICATIONS OF TRENDS IN MUNICIPAL FINANCE FOR HOUSING AFFORDABILITY.

*Prepared by Harry M. Kitchen and Enid Slack. Ottawa: Canada Mortgage and Housing Corporation, 1993.*

The purpose of this paper is to determine the implications for housing affordability of trends in municipal finance. The paper summarizes trends in municipal expenditures and revenues for seven Canadian cities over the last twenty years and then addresses the degree to which housing affordability may have changed over time as a consequence of municipal financial decisions.

The trends in expenditures indicate that municipal spending to improve the quantity and quality of local services has not increased significantly in constant dollars per capita over the last twenty years. However, the sources of revenues that municipalities use to finance expenditures have changed somewhat over time and this change may have affected housing affordability. The most important sources of revenue to municipalities in Canada are property taxes and provincial transfers. While property taxes are a large revenue source in all of the cities studied, they have not been increasing much over the last twenty years. Provincial transfers, on the other hand, have declined in three of the seven cities and not increased much in the other four. In terms of other revenue sources, user fees are still relatively small in comparison to taxes and transfers, but they have been growing rapidly, especially in Vancouver and Halifax.

Increased demands on municipalities to make expenditures coupled with the continuing decline in provincial grants is likely to lead to higher property taxes, user fees and charges on developers in the future. This change in emphasis could, at the margin, worsen housing affordability in the future.

### Ongoing Projects/Projets en cours

#### HANDBOOK ON MUNICIPAL ENVIRONMENTAL PRICING

##### Objective:

To produce the ICLEI handbook on municipal environmental pricing which will provide a blueprint for reforming municipal economic instruments.

##### Division:

International Relations  
Division

##### Contractor:

International Council for  
Local Environmental  
Initiatives  
City Hall, East Tower  
8th Floor  
Toronto, Ontario  
M5H 2N2

##### CIDN:

1252 0900001

##### Central Registry:

4350-15

### ABORIGINAL HOUSING NEEDS

**Objective:**

To provide a profile of the housing characteristics and needs of aboriginal peoples using data from the 1991 Census and post-censal Aboriginal Peoples Survey (APS).

**Division:**

Research Division

**Contractor:**

ARK Research Associates  
165 Hinton Avenue North  
Ottawa, Ontario  
K1Y 0Z9

**CIDN:**

1045 0201002

**Central Registry:**

6620-2

### ANALYSIS OF MIGRATION AND RESIDENTIAL MOBILITY PATTERNS AMONG CANADA'S ABORIGINAL POPULATION

**Objective:**

To undertake a study examining both the migration and mobility patterns among aboriginal groups.

**Division:**

Research Division

**Contractor:**

Royal Commission on Aboriginal Peoples  
427 Laurier Avenue, 6th Floor  
P.O. Box 1993, Station "B"  
Ottawa, Ontario  
K1P 1B2

**CIDN:**

1171 0200001

**Central Registry:**

6855-26

### APPROACHES TO HOUSING FOR THE MÉTIS PEOPLE

**Objective:**

To conduct research on native housing issues relevant to Métis people and prepare a report exploring options for approaches to meet the housing needs of Métis people.

**Division:**

Strategic Planning and Policy Development Division

**Contractor:**

Métis National Council  
50 O'Connor Street  
Suite 310  
Ottawa, Ontario  
K1P 6L2

**CIDN:**

1189 0100001

**Central Registry:**

4044-2

### ASSESSMENT OF REQUIREMENTS TO ESTABLISH FIRST NATIONS BUILDING INSPECTION UNITS

**Objective:**

Determine the financial and human resources needed to establish a system of First Nations housing inspection units across Canada, and identify the legal, regulatory, or other barriers that must be addressed if the system is to be put in place.

**Division:**

Strategic Planning and Policy Development Division

**Contractor:**

Assembly of First Nations Housing Programs  
55 Murray Street, 5th Floor  
Ottawa, Ontario  
K1N 5M3

**CIDN:**

1159 0100001

**Central Registry:**

4044-2

### THE HOUSING CRISIS IN CANADA'S INUIT COMMUNITIES

**Objective:**

To conduct research on housing issues relevant to Inuit people.

**Division:**

Strategic Planning and Policy Development Division

**Contractor:**

Inuit Tapirisat of Canada  
Suite 510  
170 Laurier Avenue West  
Ottawa, Ontario  
K1P 5V5

**CIDN:**

1196 0100001

**Central Registry:**

4044-2

### HOUSING FOR THE MÉTIS PEOPLE: A NATIONAL STUDY ON THE STATE OF MÉTIS HOUSING

**Objective:**

Examine the state of housing for Métis people in the Métis homeland.

**Division:**

Strategic Planning and Policy Development Division

**Contractor:**

Métis National Council  
558 Whitewood Crescent  
Saskatoon, Saskatchewan  
S7J 4L1

**CIDN:**

1158 0100001

**Central Registry:**

4044-2



**INCREASING SELF-SUFFICIENCY: NEW FINANCING AND INVESTMENT OPPORTUNITIES FOR URBAN AND RURAL NATIVE HOUSING AUTHORITIES**

**Objective:**

Conduct research on options to increase the self-sufficiency of native housing authorities through new financing and investment opportunities.

**Division:**

Strategic Planning and Policy Development Division

**Contractor:**

Native Council of Canada  
384 Bank Street, 2nd Floor  
Ottawa, Ontario  
K2P 1V4

**CIDN:**

1203 0100001

**Central Registry:**

4044-2

**INUIT WOMEN AND HOUSING ISSUES**

**Objective:**

To conduct research on housing issues relevant to Inuit women. The results of this research will be translated into Inuktitut, published and distributed throughout the North as a means of promoting public awareness and discussion of the issues.

**Division:**

Strategic Planning and Policy Development Division

**Contractor:**

Pauktuutit - Inuit Women's Association  
200 Elgin Street  
Suite 804  
Ottawa, Ontario  
K2P 1L5

**CIDN:**

1180 0100001

**Central Registry:**

4044-2

**MANAGEMENT OF SURVEYS OF MANAGERS/SPONSORS AND TENANTS OF THE URBAN NATIVE HOUSING PROGRAM**

**Objective:**

Management of surveys of managers/sponsors and tenants of the Urban Native Housing Program.

**Division:**

Program Evaluation Division

**Contractor:**

SPR Associated Incorporated  
2318 Danforth Avenue  
2nd Floor  
Toronto, Ontario  
M4C 1K7

**CIDN:**

1008 0501003

**Central Registry:**

0427-18

**SECOND STAGE HOUSING FOR ABORIGINAL WOMEN AND FRAMEWORK TO MEASURE THE IMPACT OF HOUSING CONDITIONS ON WELL-BEING OF ABORIGINAL WOMEN AND THEIR CHILDREN**

**Objective:**

This two-part project has the following objectives:

- (a) Establish the need for "second-stage" housing for Aboriginal women (and their children) and develop a transferable community-based model for use across Canada.
- (b) Develop a framework to measure the impact of housing conditions on the well-being of Aboriginal women and their children (i.e., health, social impacts including family violence and sexual abuse, self-esteem, etc.).

**Division:**

Strategic Planning and Policy Development Division

**Contractor:**

Native Women's Association of Canada  
9 Melrose Avenue  
Ottawa, Ontario  
K1N 5P3

**CIDN:**

1152 0100001

**Central Registry:**

4044-2

## THE NORTH/LE NORD

### Ongoing Projects/Projets en cours

#### NORTH FILE FACT SHEETS

**Objective:**

To produce fact sheets on northern building technology camera-ready for production.

**Division:**

Housing Innovation Division

**Contractor:**

Scanada Consultants Limited  
446 Reynolds Street  
Oakville, Ontario  
L6J 3M4

**CIDN:**

0515 0300002

**Central Registry:**

6796-4-1

### Ongoing Projects/Projets en cours

#### VALIDATION OF RIMT TECHNOLOGY

**Objective:**

RIMT (Reflectometric Impulse Measurement Technique) is a non-destructive test method which may be useful in examining the condition of reinforcing tendons in post-tensioned concrete. This project aims to determine whether the RIMT method is able to detect the existence of corrosion defects anywhere along the cable; the degree of severity of the corrosion; the nature of the corrosion; the number of corroding wires in a strand; the location of the defect along the tendon; the presence and location of water in the cable; and the existence of discontinuities in the protective grease cover of the tendon.

**Division:**

Research Division

**Contractor:**

John A. Bickley Associates  
Limited  
27 Summerhill Avenue  
Toronto, Ontario  
M4T 1A9

**CIDN:**

0933 0200001

**Central Registry:**

6711-8

#### VALIDATION OF THE REFLECTOMETRIC IMPULSE MEASUREMENT OF TECHNOLOGY (RIMT)

**Objective:**

To assist CMHC in the validation of the reflectometric impulse measurement technology (RIMT) by evaluating the results of the work and providing a review of the final report.

**Division:**

Research Division

**Contractor:**

Dr. G.G. Litvan  
248 Range Road  
Ottawa, Ontario  
K1N 8J8

**CIDN:**

0933 0200003

**Central Registry:**

6711-8

#### VERIFICATION OF RIMT EQUIPMENT

**Objective:**

To assist J.A. Bickley Associates in the development of a research plan for the validation of RIMT technologies.

**Division:**

Research Division

**Contractor:**

Cordec International Inc.  
1390 Prince of Wales Drive  
Suite 103  
Ottawa, Ontario  
K2C 3N6

**CIDN:**

0933 0200002

**Central Registry:**

6711-8

## PLAYGROUNDS/JEUX, TERRAINS DE

### Ongoing Projects/Projets en cours

#### UPDATING OF PLAYGROUND PUBLICATIONS AND SLIDE PRESENTATIONS FROM CHILDREN'S ENVIRONMENTS ADVISORY SERVICE

##### Objective:

Updating of playground  
publications and slides.

##### Division:

Housing Innovation Division

##### Contractor:

Betty Dion Enterprises Ltd.  
458 Melbourne Avenue  
Ottawa, Ontario  
K2A 1W3

##### CIDN:

1114 0300001

##### Central Registry:

6545-6



## Ongoing Projects/Projets en cours

### AMÉLIORER LA QUALITÉ DE NOTRE BASE DE DONNÉES INFORMATIQUES SUR LES LOGEMENTS LOCATIFS

**Objet :**

Améliorer la qualité de notre base de données informatique sur les logements locatifs en apportant des corrections sur les informations contenues dans cette base de données.

**Division :**

Division des services statistiques

**Contractant :**

Edna Suck  
Quantum

**NIC :**

1108 0400006  
1108 0400007

**Numéro de la gestion des documents :**

7120-1

### L'APPROCHE HÉDONIQUE ET LE MARCHÉ RÉSIDEN- TIEL LOCATIF : UNE APPLICATION À LA RÉGION DU QUÉBEC

**Objet :**

La recherche consiste à appliquer l'approche hédonique au marché résidentiel locatif de la région de Québec, dans le but d'établir, à l'aide des données du marché, le prix implicite des attributs résidentiels qui composent le niveau des loyers et partant, les valeurs immobilières.

**Division :**

Division de la recherche  
Programme de subventions de recherche

**Contractant :**

Monsieur François Des Rosiers  
Faculté des sciences de l'administration  
Université Laval  
Ste-Foy (Québec)  
G1K 7P4

**NIC :**

0920 0200001

**Numéro de la gestion des documents :**

6585/D33-3

### DEVELOP A RENTAL MARKET UNIVERSE AND PRODUCE A BRIEF MARKET REVIEW FOR THE COMMUNITY OF KENTVILLE

**Objective:**

To develop a rental market universe and produce a brief market review for the community of Kentville.

**Division:**

Statistical Services Division

**Contractor:**

Anne Traboulsee  
c/o CMHC Halifax Office  
P.O. Box 9315, Station "A"  
Halifax, Nova Scotia  
B3K 5W9

**CIDN:**

0881 0400003

**Central Registry:**

7050-70

### TENANT MANAGEMENT OF A ROOMING HOUSE

**Objective:**

To develop knowledge and expertise in the tenant management approach, particularly in the private rental market, and inform interested public or private rental market planners or proprietors.

**Division:**

Research Division  
External Research Program

**Contractor:**

Mr. Harry MacKay  
Social Research Consultant and Associates  
1 - 88 Marlborough Avenue  
Ottawa, Ontario  
K1N 8E9

**CIDN:**

1093 0200001

**Central Registry:**

6585/M103

### **GOVERNMENT INFLUENCES ON PROPERTY PRICING: A SURVEY OF CASE STUDIES.**

*Prepared by Amelia Colebourne. Prepared for Canada Mortgage and Housing Corporation, Strategic Planning and Policy Development Division. Ottawa: CMHC, 1993.*

This study is an information exercise on former and current methods used by governments to influence residential land pricing. These methods include land reserves, the sale of surplus federal lands, affordable housing development programs and speculation taxes.

For example, information on the goals and objectives of land reserve policies, and on their administration and sizes, were obtained from every province for a case study. Land acquisition methods include direct purchases, expropriations and purchases through public-private partnerships.

The disposal of surplus federal lands involves the development of a subdivision and zoning approval plan by the municipality, as well as studies on transportation, services and the environment. Developers are also required to register the subdivision plan and build the infrastructures for the disposed lands, at their own expense. The lands are sold to contractors and property developers who may obtain building permits to develop housing. The case studies on surplus land sales that are described in the report concern the municipality of Vaughan (106 acres), the Canadian Forces Base in Downsview (130 acres) and the redevelopment of CMHC's Branch Office in Toronto (3.7 acres).

Provinces and municipalities have different processes and various reasons for disposing of surplus lands. Some have surplus land disposal programs, while others proceed to selective sales, either of lands that are part inactive reserves or of other properties. The reasons include the supply of affordable lands, the stabilization of land prices and planning control. Provincial-municipal partnerships are common.

## **RESIDENTIAL DEVELOPMENT AMÉNAGEMENT RÉSIDENTIEL**

### **HOUSING STANDARDS PROJECT: EXECUTIVE SUMMARY.**

*Prepared by Neilson-Welch Research Associates. Prepared for Strategic Planning and Policy Development Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1993.*

Housing standards are broadly defined as regulations applied by various levels of government in order to influence the development of new housing. There are two types of housing standards: those affecting lands and those concerning buildings.

The study found that changes in housing standards during the period from 1982 to 1992 had a generally negative impact on housing affordability. The only changes that had a positive impact on affordability were those related to permissible housing types and residential land density. These changes led to the production of more affordable housing types such as apartments, mobile homes, garden suites and accessory apartments. However, two major factors support the general conclusion that government attempts since 1982 to regulate the development of new housing have increased the cost of housing in Canada. First, regulatory changes that made for higher costs also brought about other non-monetary advantages. Consumers consider certain changes to be valid because they focus on important issues like environmental protection, the conservation of agricultural lands, the recognition of heritage or health and safety concerns. Second, evaluations demonstrate that governmental organizations rarely introduce changes that unnecessarily raise costs. Another factor that must be taken into account is that, in many cases, the actual additional costs resulting from regulatory changes may be negligible in comparison with changes in other housing cost components such as property values and financing costs.

### **PROPERTY STANDARDS FACT-FINDING PROJECT.**

*Prepared by Karen Pianosi. Prepared for Strategic Planning and Policy Development Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1993.*

This report was commissioned by Canada Mortgage and Housing Corporation as a source of background data and information regarding the evolution of residential property standards for development across Canada. The Property Standards Fact-Finding Project consists of two sections. The first section presents the results of a survey of 10 Canadian municipalities - one per province. Site planning and engineering standards applied in subdivision development in 1952 and 1992 are identified.

The survey indicates that municipalities vary in their use of standards and in determining specific standards. For example, six municipalities (Charlottetown, St. John's, Calgary, Mississauga, Winnipeg, and Regina) do not presently require a minimum floor area for single detached housing. Montreal, Halifax, Saint John, and Surrey do have minimum floor area requirements, varying from 50 sq. m. to 110 sq. m. In terms of minimum lot areas for single detached housing, all municipalities (with the exception of Montreal) responding to the survey had minimum standards in 1992. These varied from a low of 233 sq. m. for Calgary to a high of 660 sq. m. for Surrey. In 1952, Calgary's, Winnipeg's, Mississauga's and Regina's standards were higher than 1992 standards.

The second section outlines selected initiatives in Canada and abroad which promote alternate development standards. These initiatives include: The Australian Model Code for Residential Development; the USA Regulatory Reform for Affordable Housing Information Centre; the Ontario Provincial Policy Statement: Land Use Planning for Housing; the New Jersey Model Subdivision and Site Plan Ordinance; the Alberta Subdivision Assessment Form; the Wilmington, N.C. Affordable Single Family Housing Policy; the Regina Zoning By-law Incentives; Zero Lot Line Development; and the Oakville, River Oaks Official Plan.



## REGULATORY PROCESSES FACT-FINDING PROJECT.

*Prepared by Allen Neilson-Welch, Neilson-Welch Research Associates, Ottawa: Canada Mortgage and Housing Corporation, 1992.*

This fact-finding project presents data on regulatory processes. The project consists of two separate sections. Section 1 is a survey of ten Canadian municipalities - one per province - that identifies the types of steps and time requirements of the regulatory processes that must be followed to develop housing in Canada. Three regulatory processes are emphasized: land development approval; building approval; and the inspection process. In addition, the survey focusses on two specific housing types, single-family developments (2-10 hectares) and multiple high-rise developments. Section 2 is a study of municipal initiatives in streamlining the development approval process. A total of seventeen initiatives are included from cities in Canada and the United States.

Each section begins with a short introduction, followed by a description of the section's focus, the methodology employed, the organization of the section, and finally the information that was gathered. Section 1's information is in table form, and Section 2's is presented in fact sheets.

### **LE REPEUPLEMENT DES VILLES : INITIATIVES CANADIENNES DE DENSIFICATION RÉSIDENTIELLE. RAPPORT PRINCIPAL : RECENSION DES ÉCRITS, RÉSULTATS DE L'ENQUÊTE, ÉTUDES DE CAS, RÉFÉRENCES.**

*Préparé par Engin Isin et Ray Tomalty. Préparé pour la Division de la recherche, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1993.*

La densification résidentielle est une politique visant à accroître la densité de l'utilisation des terrains, soit dans les noyaux urbanisés ou dans les "villes périphériques" des banlieues. Bien que les initiatives de densification puissent porter sur des terrains commerciaux, institutionnels ou industriels, cette étude traite de la densification résidentielle, qu'elle s'applique à de nouveaux ensembles immobiliers ou à de vieux quartiers.

L'étude vise trois principaux objectifs : (i) faire la recension des travaux d'universitaires et d'experts qui présentent le pour et le contre de la densification; (ii) réaliser une enquête nationale auprès des municipalités afin de connaître les politiques et initiatives de densification; et (iii) réaliser des études de cas détaillées d'initiatives de densification sélectionnées.

Les écrits révèlent que pour chaque argument en faveur de la densification, on trouve un contre-argument, souvent sur la base de la même information. L'enquête nationale révèle que les initiatives de densification sont beaucoup plus diverses et plus élaborées que prévu. On en trouve aussi bien dans de petites municipalités périphériques que dans de grands centres urbains et la majorité d'entre elles sont déjà réalisées. Les études de cas confirment ces résultats et l'ampleur comme le sérieux des initiatives municipales signalent un changement significatif dans les politiques d'urbanisme en ce qui concerne l'utilisation de la superficie urbaine au Canada.

NOTE : Also available in English under the title: *Resettling Cities: Canadian Residential Intensification Initiatives. Main Report: Literature Review, Survey Findings, Case Studies, References.*



# RESIDENTIAL DEVELOPMENT AMÉNAGEMENT RÉSIDENTIEL

## RESETTLING CITIES: CANADIAN RESIDENTIAL INTENSIFICATION INITIATIVES.

*Prepared by Engin Isin and Ray Tomalty. Prepared for Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1993. 2 Volumes.*

Volume 1. Main Report: Literature Review, Survey Findings, Case Studies, References.

Residential intensification is a policy of increasing the density of land use, either in core cities or "edge cities" on the urban periphery. Although intensification initiatives may occur in commercial, institutional or industrial areas, the focus of this study is on residential intensification, whether this be in new developments or in mature neighbourhoods.

The study has three main objectives: (i) to review the academic and professional literature on the pros and cons of intensification; (ii) to conduct a national survey of municipalities to identify intensification policies and initiatives; and (iii) to conduct detailed case studies of selected intensification initiatives.

The literature reveals that for every argument that supports intensification there is a counter argument that repudiates it, often on the basis of the same information. The national survey reveals that intensification initiatives are much more diverse and developed than anticipated: they range from small fringe municipalities to large core cities, and a majority of them have been implemented. The case studies verify these findings, and the breadth and depth of municipal projects undertaken indicate a significant planning policy shift in how urban land is used in Canada.

Volume 2. Compendium Report: Survey Tabulation, Database Variables, List of Municipalities, Bibliography, Intensification Maps, Detailed Case Studies, Survey Questionnaires.

The Compendium Report presents detailed reference material compiled for researchers who may want to benefit from the survey data and other information collected for the study. It contains the tabulation of more than 150 variables, an exhaustive bibliography on intensification and sprawl, and background information for the case studies that appear in the Main Report. It also includes a list of 987 municipalities involved in the study, various intensification maps, and the questionnaires that were sent to municipalities.

NOTE: Disponible aussi en français sous le titre : *Le Repeuplement des villes : initiatives canadiennes de densification résidentielle. Rapport principal : recension des écrits, résultats de l'enquête, études de cas, références.*

## Ongoing Projects/Projets en cours

### ALTERNATIVE PLANNING APPROACHES

#### Objective:

Prepare a research report entitled "Alternative Planning Approaches" which will review alternative approaches to community planning and design, such as "Neo-Traditional Designs", "Pedestrian Pockets", "Cohousing Communities" and "Eco-Villages".

#### Division:

Research Division

#### Contractor:

Hygeia Consulting Services  
430 Elm Road  
Toronto, Ontario  
M5W 3W7

#### CIDN:

1192 0200001

#### Central Registry:

6665-22

## **COLLECT EXPERT DISCUSSION PAPERS AND HOLD A SYMPOSIUM ON LAND TRUSTS AND SELF-HELP HOUSING**

### **Objective:**

To collect expert discussion papers on the issues identified as directly relevant to land trusts and self-help housing as tools in social housing presented and reviewed at a symposium in December 1993.

### **Division:**

Strategic Planning and Policy  
Development Division

### **Contractor:**

Canadian Housing and  
Renewal Association  
304-251 Laurier Avenue West  
Ottawa, Ontario  
K1P 5J6

### **CIDN:**

1216 0100001

### **Central Registry:**

6850-2

## **THE EXTERNALITIES OF RESIDENTIAL DEVELOPMENT**

### **Objective:**

Prepare an authoritative paper entitled "The Externalities of Residential Development". The paper shall examine several common housing-related externalities in order to foster a more comprehensive understanding of some of the direct and indirect social, economic and environmental costs/impacts associated with our houses and our communities.

### **Division:**

Research Division

### **Contractor:**

Sheltair Scientific Limited  
2-3661 West 4th Avenue  
Vancouver, British Columbia  
V6R 1P2

### **CIDN:**

0982 0200001

### **Central Registry:**

6665-16

## **HOUSING THE NEW FAMILY: PROSPECTS FOR FAMILY ORIENTED RESIDENTIAL INTENSIFICATION**

### **Objective:**

To research the existing literature relating to current trends in the composition and housing characteristics of Canadian family households, and develop residential design principles which balance the need for more intensive forms of residential development with the requirements of families with children.

### **Division:**

Research Division  
Experts in Residence Program

### **Contractor:**

Laura Johnson  
374 Sackville Street  
Toronto, Ontario  
M4X 1S5

### **CIDN:**

1015 0200001

### **Central Registry:**

6855-5

## **REVIEW OF CMHC HOUSING DEVELOPMENT PLANS**

### **Objective:**

To review three housing development plans with a view to suggesting how permaculture could best be integrated into the plans.

### **Division:**

Research Division

### **Contractor:**

Linda Chapman Architect  
27 Third Avenue  
Ottawa, Ontario  
K1S 2J5

### **CIDN:**

1205 0200002

### **Central Registry:**

3895-10

## **UNEARNED INCREMENT IN LAND VALUE**

### **Objective:**

Review theory and develop theoretical conclusions regarding the effect of site value on land use intensity, development timing, land use efficiency. Identify general conditions that may reduce adverse consequences, define site rent and measurement, etc.

### **Division:**

Research Division

### **Contractor:**

Queen's University  
Director of Research Services  
and Associate Dean  
Fleming Hall  
Kingston, Ontario  
K7L 3N6

### **CIDN:**

0705 0200001

### **Central Registry:**

6640-3

## RESIDENTIAL MOBILITY/MOBILITÉ RÉSIDENTIELLE

### Ongoing Projects/Projets en cours

**FACTORS INFLUENCING  
RESIDENTIAL MOBILITY  
AMONG FAMILIES WITH  
CHILDREN LIVING IN A LOW-  
INCOME AREA IN WINNIPEG,  
MANITOBA**

**Objective:**

To understand how  
low-income families with  
school-aged children perceive  
their residential mobility, its  
causes and consequences.

**Division:**

Research Division  
External Research Program

**Contractor:**

Dr. Nancy C. Higgitt  
Department of Family Studies  
University of Manitoba  
Winnipeg, Manitoba  
R3T 2N2

**CIDN:**

1090 0200001

**Central Registry:**

6585/H061-2

## RESIDENTIAL REHABILITATION RÉNOVATION DE LOGEMENTS

Completed Reports/Rapports terminés

### **NATIONAL SURVEY OF RENOVATORS: NEEDS AND ATTITUDES ABOUT TRAINING AND HUMAN RESOURCE DEVELOPMENT.**

*Prepared by Ekos Research Associates Inc. Prepared for Joint Human Resource Development, Residential Renovator Committee of the Canadian Home Builders' Association. Ottawa: Canada Mortgage and Housing Corporation; Canadian Home Builders' Association; Human Resources Development Canada, 1993.*

Ekos Research was hired by the Joint Human Resource Development (JHRD) - Residential Renovator Committee of the Canadian Home Builders' Association to collect information to help facilitate and guide the design and implementation of human resource development strategies in the renovation industry. The three major objectives of the survey included: 1) providing a profile of Canadian renovators and renovation businesses; 2) describing the attitudes and behaviour of renovators in the area of training and human resource development; and 3) obtaining the opinions of renovators on the need to increase the level of professionalism in the industry and about the potential methods to achieve this objective.

The profile of renovation companies developed from this study shows that almost all the firms involved are small businesses run by owner-operators. Despite some apparent commonalities in the industry as a whole, the industry is highly segmented and should not be viewed as a single entity. Renovators considered training to be very important and identified the following subject areas as priorities for training: customer service and client relations; technical and trades courses; management and business; health and safety; and computers. Renovators also expressed strong support for the principle of industry designation programs. Three-quarters of the survey respondents agreed that the certification of workers and the formal recognition of companies in renovation were good ideas. Support for the idea of a third-party warranty program such as the ones in place for new house construction was much weaker than the support for designation programs.



# RESIDENTIAL REHABILITATION RÉNOVATION DE LOGEMENTS

## RENOVATION STRATEGIES FOR BRICK VENEER STEEL STUD CONSTRUCTION: TASK 1: BRICK TIES.

*Prepared by M.A. Postma and E.F.P. Burnett, Building Engineering Group, University of Waterloo, with assistance from Trow Consulting Engineers Ltd. Prepared for Housing Innovation Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1992.*

The purpose of this research project is to develop various strategies for the remediation, control and avoidance of problems in existing brick veneer/ steel stud (BV/SS) wall systems. Five tasks were identified:

- Task 1: Initial Exploratory Study
- Task 2: Tie-Stud Attachment
- Task 3: Tie-Penetration Considerations
- Task 4: Demonstration Panels
- Task 5: Field Trials

This report documents the work conducted in Task 1, the initial exploratory study.

The main objective of the first task was to identify, demonstrate and assess the methods of providing supplemental ties to BV/SS buildings. Of particular interest were retrofit procedures that could be conducted from the interior. A secondary objective, common to all repair systems, was to develop procedures for locating the stud from both the interior and the exterior.

An assessment of the relative merits of each repair method has been provided. There is no optimal solution. Each method has both advantages and disadvantages. Moreover, each repair situation is unique and may require a unique solution. This report can be used to advantage in arriving at a solution. The comparison tables that have been developed provide a useful vehicle for evaluating supplemental tie systems. Procedures for locating the steel stud from both the exterior and the interior have been identified and documented. It was found that locating the studs from the interior is generally easier than doing so from the exterior, but procedures are available to address this common problem.

Whether the need for remedial brick ties is due to improper tie selection, corrosion, or inadequate spacing does not significantly affect which supplementary tie system should be used. However, the choice of tie system, and whether an interior or exterior repair method should be used, does depend on the nature and extent of all the repair work needed on the building. The impact of other building deficiencies may affect the choice of tie repair method. The choice of an interior or an exterior repair method will depend on numerous factors, the most important of which are cost, access, timing and the type of repairs that are needed. All things considered, the choice of repair system does depend on the overall state of the building, the costs of alternative strategies and the needs of the owners and tenants of the building.

## ASSESSMENT REPAIR STRATEGY FOR EXISTING BUILDINGS CONSTRUCTED WITH MASONRY VENEER STEEL STUD WALLS

### Objective:

To develop an assessment strategy in four phases for repair of buildings constructed with brick veneer steel stud systems.

### Division:

Housing Innovation Division

### Contractor:

T.W.J. Trestain  
573 Durie Street  
Toronto, Ontario  
M6S 3H2

### CIDN:

0937 0300001

### Central Registry:

6796-3-8

## MASONRY VENEER STEEL STUD RENOVATION STRATEGIES

### Objective:

To assess repair strategies for brick veneer/steel stud systems.

### Division:

Housing Innovation Division

### Contractor:

University of Waterloo  
Building Engineering Group  
Waterloo, Ontario  
N2L 3G1

### CIDN:

0787 0300001

### Central Registry:

6796-3-7

## INCUMBENT UPGRADING IMPLICATION FOR RESIDENTIAL REVITALIZATION

### Objective:

This study will involve conducting theoretical and empirical research into incumbent upgrading.

### Division:

Research Division  
External Research Program

### Contractor:

Ms. Christine Diane McKee  
University of Manitoba  
Department of City Planning  
201 Russell Building  
Winnipeg, Manitoba  
R3T 2N2

### CIDN:

1094 0200001

### Central Registry:

6585/M105

## PILOT STUDY ON RENOVATION OF GENERIC HOUSING SYSTEM

### Objective:

To prepare, review with regional team members and submit to CMHC a draft report on generic house and component types, safe renovations, retrofits, and potential impacts from which detailed renovation guides can be selected and developed.

### Division:

Research Division  
Panel on Energy R&D

### Contractor:

Scanada Consultants Limited  
436 MacLaren Street  
Ottawa, Ontario  
K2P 0M8

### CIDN:

0831 0800001

### Central Registry:

6503-20

## THE RENOVATION CONTRACTOR TRAINING PROGRAM

### Objective:

To develop a "Training Manual for the National Renovation Contractor Training Program" based on an existing "Participants Manuscript".

### Division:

Housing Innovation Division

### Contractor:

Energy Technology Access Group Inc.  
110-2103 Airport Drive  
Saskatoon, Saskatchewan  
S7L 6W2

### CIDN:

0827 0300003

### Central Registry:

6507-1

## TWELVE FOCUS GROUPS ON RENOVATION

### Objective:

To use statistical and focus group research into the home renovation sector of the Canadian housing market to develop a more comprehensive understanding of the decision making process of consumers as they consider renovation projects.

### Division:

Research Division

### Contractor:

Energy Pathways Inc.  
500-251 Laurier Avenue West  
Ottawa, Ontario  
K1P 5J6

### CIDN:

1063 0201001  
1063 0200001

### Central Registry:

6615-15

## SECURITY SYSTEMS/SÛRETÉ — SYSTÈMES

### Ongoing Projects/Projets en cours

#### SECURITY SYSTEM FOR MODULE HOUSE

##### Objective:

Purchase and installation of monitoring devices and shunting security system for the module house.

##### Division:

Research Division

##### Contractor:

INFR Graphic Systems Inc.  
10 Hearst Way  
Kanata, Ontario  
K2L 2P4

##### CIDN:

0938 1100005

##### Central Registry:

PR277

**PROBLÈMES TECHNIQUES LIÉS À L'UTILISATION DU SYSTÈME EXISTANT D'ÉVACUATION DES EAUX USÉES DESSERVANT À LA FOIS UNE HABITATION PRINCIPALE ET UN PAVILLON-JARDIN ÉRIGÉ SUR LE MÊME TERRAIN.**

*Préparé par T.W. Hennigar, K. Dickie, D.H. Waller, Technical University of Nova Scotia, Centre for Water Resources Studies. Ottawa: Société canadienne d'hypothèques et de logement, 1993.*

L'objectif de ce projet était de cerner et de régler les préoccupations des organismes de réglementation des provinces de l'Atlantique au sujet des problèmes techniques liés à l'utilisation du système autonome d'épuration des eaux usées desservant à la fois une habitation principale et un pavillon-jardin érigé sur le même terrain. Le projet comportait deux phases : des entrevues avec les responsables de chacune des quatre provinces de l'Atlantique afin de consigner leurs préoccupations d'ordre techniques au sujet du raccordement d'un pavillon-jardin à un système autonome d'épuration déjà installé; et l'examen et l'évaluation des résultats des entrevues, des documents de référence et des ouvrages techniques.

Tous les responsables provinciaux de l'Atlantique ont la même préoccupation au sujet du raccordement d'un pavillon-jardin à un réseau d'assainissement individuel : la possibilité que le système fonctionne mal si la demande est trop grande. Dans les documents consultés, on expose un certain nombre de mesures, qui peuvent être adoptées pour éliminer ou réduire les préoccupations concernant le raccordement des pavillons-jardins aux systèmes autonomes d'épuration existants. Certaines de ces mesures comprennent l'amélioration du système, l'accroissement de la capacité, les mesures de conservation de l'eau et un programme d'entretien régulier du système, notamment la vidange de la fosse septique.

De plus, les résultats de cette étude indiquent que les organismes de réglementation doivent intervenir au début de la planification de la conception et de la mise en oeuvre des programmes visant à promouvoir l'utilisation des pavillons-jardins. De telles propositions doivent être élaborées en consultation avec les organismes provinciaux indiqués dans le rapport. L'une des contraintes des systèmes autonomes d'évacuation des eaux usées est que chacun d'eux doit faire l'objet d'une évaluation particulière à cause des caractéristiques de son drainage, de ses charges et de son entretien. Par conséquent, pour les propositions visant à promouvoir l'utilisation des pavillons-jardins, on doit tenir compte de la nécessité de déterminer cas par cas la capacité du système de la résidence principale à traiter les eaux usées d'un pavillon-jardin.

NOTE : Also available in English under the title: *Technical Impediments to Use of the Existing On-Site Sewage System of a Host House to Service a Garden Suite on the Same Property.*



## SEWAGE DISPOSAL/EAUX USÉES

### TECHNICAL IMPEDIMENTS TO USE OF THE EXISTING ON-SITE SEWAGE SYSTEM OF A HOST HOUSE TO SERVICE A GARDEN SUITE ON THE SAME PROPERTY.

*Prepared by T.W. Hennigar, K. Dickie, D.H. Waller, Technical University of Nova Scotia, Centre for Water Resources Studies. Ottawa: Canada Mortgage and Housing Corporation, 1993.*

The objective of this project was to identify and address concerns of regulatory officials in Atlantic Canada about technical impediments to the use of the existing on-site septic system of a Host House to service a Garden Suite on the same property. The project included two components. The first comprised interviews with responsible officials in each of the four Atlantic Provinces, to document technical concerns related to the connection of a garden suite to an existing on-site system. The second component involved a review and assessment of the results of the interviews, and of reference material and the technical literature.

All provincial officials in Atlantic Canada shared a principal concern about the connection of a garden suite to an existing septic system: the potential for system malfunction if loaded beyond its capacity. There were a number of measures discussed in the literature that could be adopted to eliminate or reduce concerns associated with the connection of garden suites to existing on-site systems. Some of these measures include system upgrading, additional installed capacity, water conservation practices, and a regular, system-maintenance program such as tank pumping.

The results of this study have also shown that the regulatory agencies should be involved at an early stage in the design, planning and implementation of programs to introduce garden suites. Such proposals should be developed in consultation with the provincial agencies identified in the report. One of the constraints of on-site sewage disposal systems is that every site is different because of the actual drainage characteristics and the loadings and maintenance of the installed system. Accordingly, proposals to introduce the use of garden suites should recognize that the capacity of the system of a host house to accommodate a garden suite can only be determined on a site-specific basis.

NOTE : Aussi disponible en français sous le titre : *Problèmes techniques liés à l'utilisation du système existant d'évacuation des eaux usées desservant à la fois une habitation principale et un pavillon-jardin sur le même terrain.*

## IMPROVEMENTS IN ON-SITE WASTEWATER TREATMENT

### Objective:

To evaluate the performance of household water conservation, in association with an innovative technology for septic tank effluent treatment and nitrogen removal, to provide more cost-effective and reliable on-site wastewater treatment.

### Division:

Research Division

### Contractor:

Technical University of Nova  
Scotia  
Centre for Water Resources  
Studies  
P.O. Box 1000  
Halifax, Nova Scotia  
B3J 2X4

### CIDN:

1047 0200001

### Central Registry:

6785-5

## LOWER COST ALTERNATIVE FOR MUNICIPAL SEWER INSPECTION AND MAINTENANCE

### Objective:

To reduce subdivision servicing costs by the design, development and testing of a technically sound and innovative structure to replace, at a lower cost, the conventional manhole.

### Division:

Research  
External Research Program

### Contractor:

Butler Krebs & Associates  
Inc.  
8616 - 51 Avenue  
Suite 210  
Edmonton, Alberta  
T6E 6E6

### CIDN:

1274 0200001

### Central Registry:

6585/K040-1

## TECHNICAL ASSISTANCE FOR WASTEWATER RESEARCH ACTIVITIES

### Objective:

Provision of draft terms of reference for a proposal call for the project; feasibility of the light grey water (LGW) design alternative; a written assessment of the proposed water supply and alternative wastewater treatment system.

### Division:

Research Division

### Contractor:

Mr. A.R. Townshend  
R.R.#1  
Athens, Ontario  
K0E 1B0

### CIDN:

1132 0200001

### Central Registry:

6785-65

### Completed Reports/Rapports terminés

#### **ENSEMBLE, ON FAIT LA DIFFÉRENCE (VF 0050).**

*Vidéocassette (20 min.); VHS. Produit par Carleton Productions Incorporated. Produit pour la Société canadienne d'hypothèques et de logement et la Commission de logement de la communauté urbaine de Toronto. Ottawa : SCHL, 1993.*

NOTE : La vidéo est disponible à la SCHL à titre de prêt ou vous pouvez acheter des exemplaires au prix coûtant de 9,95 \$.

Cette vidéo décrit les mesures uniques prises par la Commission de logement de la communauté urbaine de Toronto dans le contexte de son programme de surveillance de quartier afin d'améliorer la sécurité et de réduire le crime dans les collectivités de logements sociaux de la ville. La vidéo montre qu'il est possible de prendre des mesures proactives afin d'améliorer les milieux de vie grâce aux ressources conjuguées des résidents, des services communautaires ainsi que des gestionnaires d'immeubles et de leurs employés.

NOTE : Also available in English under the title: *Together We're Making a Difference* (VE 0050).

#### **THE EVOLUTION OF THE STAMP'S PLACE SAFETY COMMITTEE: A COMMUNITY SAFETY CASE STUDY: A REPORT TO THE CANADA MORTGAGE AND HOUSING CORPORATION.**

*Prepared by Calvin Lee and Patti Pearcey. Prepared for the B.C. Coalition for Safer Communities and Strategic Planning and Policy Development Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1993.*

Stamp's Place is a large, 453-unit, public housing complex situated in the heart of Vancouver's inner city. This report documents the history and development of the Stamp's Place Safety Committee as well as its efforts to address crime issues by increasing community cohesion. The Committee is involved in a process which seeks to build a safer community through short-, medium- and long-term initiatives, all of which recognize social organization as the primary factor.

The first section of the report describes Stamp's Place and the surrounding neighbourhood. The second section details the structural features of the Committee, evaluates the management style of the British Columbia Housing Management Commission (BCHMC), and examines the challenges that the Committee has had to face, some of which are unique to public housing. It also describes the Safety Fair which was held in the summer of 1993 as a vehicle to encourage more residents, local organizations, politicians and institutions to become involved in activities which promote crime prevention. The report emphasizes the delicate balance which must be maintained between the process of community empowerment, and working toward a partnership with powerful institutions such as the police and the housing authority.

Several policy recommendations are included in the report. They suggest a stronger role for CMHC in supporting research and developing policies and programs which support safety facilitation and information transfer. All of these roles are accepted as part of the Corporation's mandate.

**LE LOGEMENT SOCIAL ÉTANT UNE ALTERNATIVE AUX RÉALITÉS SOCIO-ÉCONOMIQUES DIFFICILES QUE VIT NOTRE CLIENTÈLE, COMMENT ASSURER LA MISSION SOCIALE DE CES HABITATIONS EN DÉBORDANT LE CADRE STRICTEMENT ADMINISTRATIF?**

*Préparé par Guibert Biard. Ottawa : Société canadienne d'hypothèques et de logement, 1993.*

Le profil légendaire de l'itinérant s'est profondément modifié au cours des dernières années par l'arrivée de nouvelles populations, notamment celles qui sont composées de jeunes âgés de 18 à 30 ans. Cette recherche trace un "profil type" de l'itinérance de la clientèle desservie par la Maison Jeun'aide à Montréal, dont les résidents sont souvent en provenance directe des pénitenciers. L'un des principaux objectifs de la Maison Jeun'aide est de permettre à sa clientèle de faire un "apprentissage de vie" avant de se réintégrer à la société.

Dans le cadre de cette recherche, un sondage a été fait auprès des intervenants qui travaillent avec cette clientèle carcérale afin de vérifier une série d'hypothèses touchant le rôle du logement social en tant que milieu de transition qui favorise le développement personnel et la réarticulation sociale de l'individu. Environ 75 % des intervenants interrogés estiment que le logement social peut être une alternative importante à l'itinérance et à l'incarcération. Parmi les indécis, 18 % croient que cette alternative n'est viable que si le logement est suffisamment structuré et supervisé. Le rapport aborde également le problème du SIDA chez les itinérants et conclut que le logement social devra, dans un avenir très rapproché, se donner une nouvelle mission - celle d'apporter un soutien à ceux qui sont séropositifs ou qui sont atteints du SIDA.

**TOGETHER WE'RE MAKING A DIFFERENCE (VE 0050).**

*Video cassette (20 min.); VHS. Produced by Carleton Productions Incorporated. Produced for Canada Mortgage and Housing Corporation and the Metropolitan Toronto Housing Authority. Ottawa: CMHC, 1993.*

NOTE: The video is available on loan from CMHC or copies may be purchased at cost for \$9.95.

This video describes how the Metropolitan Toronto Housing Authority's Safe Neighbourhood Initiatives program initiated unique ways to improve security and reduce crime in social housing communities in Toronto. By bringing together the resources of residents, community services, and housing management and staff, the video shows how people can take steps to improve their living environments.

NOTE: Aussi disponible en français sous le titre : *Ensemble, on fait la différence (VF 0050).*



## Ongoing Projects/Projets en cours

### CREATION OF THE LONGITUDINAL ADMINISTRATIVE DATABASE (LAD) AND LINKAGE OF SOCIAL HOUSING DATA

#### Objective:

To create a longitudinal database of Canadians, individuals with their family characteristics over the period from 1982 to 1993; to link information on social housing to the longitudinal database using project name and addresses.

#### Division:

Research Division

#### Contractor:

Statistics Canada  
26th Floor, RHC  
Tunney's Pasture  
Ottawa, Ontario  
K1A 0T6

#### CIDN:

0895 0200001

#### Central Registry:

6855-9-2

### CUSTOMIZED ANALYSIS OF CHANGING SOCIAL VALUES AND THE POTENTIAL IMPLICATIONS FOR SOCIAL HOUSING POLICY

#### Objective:

To carry out a customized analysis of changing social values and the potential implications for social housing policy, based on the Environics monitor of social change (3SC monitor).

#### Division:

Strategic Planning and Policy  
Development Division

#### Contractor:

Environics Research Group  
Limited  
45 Charles Street East  
Toronto, Ontario  
M4Y 1S2

#### CIDN:

1264 0100001

#### Central Registry:

0439/6

### DEVELOPMENT OF INDICATORS OF QUALITY OF LIFE, HEALTH AND WELL-BEING IN CANADIAN SOCIAL HOUSING

#### Objective:

To develop indicators of health and well-being which would apply to social housing and could be used in the upcoming CMHC evaluation of its urban social housing programs.

#### Division:

Research Division

#### Contractor:

Veronica Doyle  
1317 Richardson Street  
Victoria, British Columbia  
V8S 1P6

#### CIDN:

1023 0200003

#### Central Registry:

6855-9-3

### DOCUMENTATION AND EVALUATION OF THE REDEVELOPMENT OF THE STRATHCONA HEIGHTS PROJECT

#### Objective:

Establish advisory committee review files; conduct surveys and detailed interviews; organize and analyze results of Phase 3; provide interim report on the evaluation of the Strathcona Heights redevelopment to the Corporation for comment; provide final version of the interim report; produce draft final versions of printed materials and slide show script; produce final version of the PTD map and slide show; provide presentations to various audiences.

#### Division:

Housing Innovation Division

#### Contractor:

The City of Ottawa  
Dept. of Housing & Property  
300-11 Holland Avenue  
Ottawa, Ontario  
K1Y 4T2

#### CIDN:

1145 0300001

#### Central Registry:

6615-16

## **EFFECTS OF SOCIAL HOUSING ON LOCAL NEIGHBOURHOODS IN CANADA**

### **Objective:**

To study the effects of social housing on local neighbourhoods in Canada.

### **Division:**

Strategic Planning and Policy  
Development Division

### **Contractor:**

Ekos Research Associates Inc.  
275 Sparks Street  
Suite 801  
Ottawa, Ontario  
K1R 7X9

### **CIDN:**

1004 0100001

### **Central Registry:**

6905/15

## **ESTABLISHING RENT-TO-INCOME RATIOS IN PUBLIC POLICY**

### **Objective:**

Study the various rent-to-income scales used for publicly-assisted housing and, where applicable, recently introduced shelter allowances across the country. Results of the study will provide a basis for establishing rent-to-income scales which would guarantee equitably amongst all households the ability to afford a norm minimum of necessary non-shelter goods and services.

### **Division:**

Research Division  
External Research Program

### **Contractor:**

J. Patterson  
97 Robert Street  
Toronto, Ontario  
M5S 2K5

### **CIDN:**

0079 0200001

### **Central Registry:**

6585/P10-1

## **MANAGEMENT OF SURVEYS OF MANAGERS/SPONSORS AND TENANTS OF NON- PROFIT AND RENT SUPPLEMENT HOUSING AND OF A TENANT COMPARISON GROUP**

### **Objective:**

Involves responsibility for a large scale survey of project managers and project tenants under the non-profit and rent supplement programs.

### **Division:**

Program Evaluation Division

### **Contractor:**

SPR Associates Incorporated  
2318 Danforth Avenue  
2nd Floor  
Toronto, Ontario  
M4C 1K7

### **CIDN:**

1008 0500001

### **Central Registry:**

0427-18

# SUSTAINABLE DEVELOPMENT DÉVELOPPEMENT DURABLE

## Completed Reports/Rapports terminés

### THE GRASS ROOTS: THE ROLE OF TENURE IN COMMUNITY AND SUSTAINABILITY.

*Prepared by W.H. James Taggart. Prepared for the Centre for Future Studies in Housing and Living Environments, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1993.*

To explore the potential of the neighbourhood as a focus of community and community organization, a study was undertaken involving 435 townhouse residents in Ottawa-Carleton. This housing form was selected because it includes a significant number of households in various tenure forms, at different levels of socioeconomic status, thus avoiding wide differences in housing form and densities. As a middle density form, one which is widely seen as a way of achieving a more sustainable urban structure, townhousing provides the opportunity to explore attitudes of people already experiencing this vision of a future, more dense, residential environment - to measure their levels of satisfaction, neighbourhood commitment and participation.

The neighbourhood was found to have continuing importance to the vast majority of people and that tenure forms which provide for collective housing management - co-operatives and condos - encourage greater participation of residents within the neighbourhood and in organizations in general. However, this increased participation did not necessarily lead to people feeling more capable of influencing decisions. Contrary to much previous evidence, it was found that participation and satisfaction did not decrease with income and education - co-op residents, third in average education and income, came out on top in satisfaction, neighbourhood commitment and participation. Even condo owners beat out the freehold owners in participation.

Medium scale housing developments also contributed marginally to increased participation, neighbouring, satisfaction, and the sense of personal influence. Some combined effects of scale and tenure were found.

NOTE: Aussi disponible en français sous le titre : *Retour aux sources : le rôle du mode d'occupation dans la collectivité et le développement durable.*

### REBÂTIR LE RÊVE : VERS UNE BANLIEUE ÉCOLOGIQUE (VF 0048).

*Vidéocassette (17 min.); VHS. Produit par le Centre d'études prospectives sur l'habitation et le cadre de vie et le Centre des relations publiques, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1993.*

NOTE : La vidéo est disponible à la SCHL à titre de prêt ou vous pouvez acheter des exemplaires au prix coûtant de 9,95 \$.

Les consommateurs rêvent toujours d'une maison individuelle de banlieue, ce qui continue de favoriser la croissance à la limite des villes. De nombreuses personnes qui ignorent les conséquences directes du développement urbain sur l'environnement se disent préoccupées par ce dernier. Cette vidéo aborde les questions comme la façon de répondre aux demandes de la société sans détruire la planète.

NOTE: Also available in English under the title: *Reconsidering the Dream: Sustainable Suburbia (VE 0048).*

## **RECONSIDERING THE DREAM: SUSTAINABLE SUBURBIA (VE 0048).**

*Video cassette (17 mins.); VHS. Produced by the Centre for Future Studies in Housing and Living Environments and the Public Affairs Centre, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1993.*

NOTE: The video is available on loan from CMHC or copies may be purchased at cost for \$9.95.

Because consumers still aspire to the dream of a suburban detached home, growth continues to be focussed on the suburban fringe of our cities. While expressing concern about the environment, many people are not aware of how directly suburban development can affect the environment. This video tackles the issue of how we can accommodate society's demands without destroying the planet.

NOTE: Aussi disponible en français sous le titre : *Rebâtir le rêve : vers une banlieue écologique (VF 0048).*

## **RETOUR AU SOURCES : LE RÔLE DU MODE D'OCCUPATION DANS LA COLLECTIVITÉ ET LE DÉVELOPPEMENT DURABLE.**

*Préparé par W.H. James Taggart. Préparé pour le Centre d'études prospectives sur l'habitation et le cadre de vie, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1993.*

Afin d'étudier le potentiel du quartier comme élément central de la collectivité et de l'organisation communautaire, on a entrepris une étude auprès de 435 résidents de maisons en rangée dans la région d'Ottawa-Carleton. On a choisi cette forme d'habitation parce qu'elle comprend un nombre important de ménages dans divers modes d'occupation, à différents niveaux de statut socio-économique, ce qui évite d'importantes différences dans les formes et les densités d'habitation. En tant que forme de densité moyenne largement considérée comme un moyen de réaliser une structure urbaine plus durable, les maisons en rangée donnent la possibilité d'étudier les attitudes des personnes qui connaissent déjà cette vision d'un environnement résidentiel futur plus dense, afin de mesurer leurs degrés de satisfaction, d'engagement dans le quartier et de participation.

On a constaté que le quartier a une importance soutenue pour la grande majorité des personnes et que les modes d'occupation qui appellent une gestion immobilière collective - coopératives et copropriétés - encouragent une plus grande participation des résidents dans le quartier et les organisations en général. Cependant, cette plus grande participation n'incite pas obligatoirement les personnes à se sentir plus aptes à influencer sur les décisions. Contrairement à ce qui a été établi au tout début, on a constaté que la participation et la satisfaction n'augmentent pas avec les revenus et l'instruction - les résidents de coopératives, troisièmes pour l'instruction et les revenus en moyenne, se sont placés premiers pour la satisfaction, l'engagement dans le quartier et la participation. Même les propriétaires de logements en copropriété battent les propriétaires de maisons en propriété absolue en ce qui concerne la participation.

Les lotissements d'importance moyenne ont également contribué, de façon marginale, à augmenter la participation, l'engagement dans le quartier, la satisfaction et le sentiment d'influence personnelle. On a constaté certains effets combinés de l'importance des lotissements et du type d'occupation.

NOTE : Also available in English under the title: *The Grass Roots: The Role of Tenure in Community and Sustainability.*



# SUSTAINABLE DEVELOPMENT DÉVELOPPEMENT DURABLE

## Ongoing Projects/Projets en cours

### CMHC COLLABORATION WITH FCM CONCERNING THE OECD PROJECT GROUP ON THE ECOLOGICAL CITY

**Objective:**

To produce a draft national overview paper and undertake other activities to represent Canada in relation to the project of the Organization for Economic Cooperation and Development (OECD) entitled "The Ecological City".

**Division:**

International Relations  
Division

**Contractor:**

Federation of Canadian  
Municipalities  
24 Clarence Street  
Ottawa, Ontario  
K1N 5P3

**CIDN:**

1313 0900001

**Central Registry:**

4305-4-13

### THE DEVELOPMENT OF ALTERNATIVE SITE PLAN FOR THE CMHC NATIONAL OFFICE LANDS

**Objective:**

Using CMHC National Office lands as a case study, this project will develop alternative site plans which respond to the imperatives of sustainable suburban development. The study will assess and document the constraints and impediments to more sustainable subdivision plans.

**Division:**

Research Division

**Contractor:**

Barry J. Hobin & Assoc. Arch.  
Inc.  
Glebe Chambers  
711 Bank Street  
Ottawa, Ontario  
K1S 3V1

**CIDN:**

1205 0200001

**Central Registry:**

3895-14

### OPPORTUNITIES FOR ACCELERATING THE IMPLEMENTATION OF ENVIRONMENTALLY SUSTAINABLE HIGH PERFORMANCE HOUSING

**Objective:**

To review current housing innovations and select five having the greatest potential for positive environmental impact; to assess their advantages and industry readiness to incorporate them into construction practice; to identify and present opportunities, impediments and strategies to bring innovations into mainstream housing.

**Division:**

Research Division  
External Research Program

**Contractor:**

Robert J. Booth  
Hansed Booth Incorporated  
Box 73A, R.R.#1  
Dalkeith, Ontario  
K0B 1E0

**CIDN:**

1271 0200001

**Central Registry:**

6585/B097

### TESTING CONSUMER RECEPTIVITY TO SUSTAINABLE AND MORE AFFORDABLE SUBURB DESIGN IN CALGARY

**Objective:**

To address the question: are Canadian consumers (houseseekers, homebuyers) receptive to residential community design that incorporates sustainable development principles and performance characteristics?

**Division:**

Research Division

**Contractor:**

William T. Perks  
Faculty of Environmental  
Design  
Calgary University  
2500 University Drive, N.W.  
Earth Sciences  
Calgary, Alberta  
T2N 1N4

**CIDN:**

1278 0200001

**Central Registry:**

6585/P011-3

## TERMITE CONTROL/TERMITES, LUTTES CONTRE LES

### Ongoing Projects/Projets en cours

#### TECHNICAL AND COMMERCIAL FEASIBILITY OF DEVELOPING THE "SAND BARRIER" METHOD

##### Objective:

To investigate the feasibility of developing the sand barrier method of subterranean termite control in Canada.

##### Division:

Research Division  
External Research Program

##### Contractor:

Dr. Timothy G. Myles  
University of Toronto  
Faculty of Forestry  
33 Willcocks Street  
Toronto, Ontario  
M5S 3B3

##### CIDN:

0740 0200001

##### Central Registry:

6585/M094

Ongoing Projects/Projets en cours

**THE CHANGING CANADIAN  
METROPOLIS**

**Objective:**

To develop and manage a consortium of authors and reviewers as well as an examination of recent significant changes in social, economic and political conditions in Canada's largest urban areas.

**Division:**

Research Division

**Contractor:**

York University  
4700 Keele Street  
North York, Ontario  
M3J 1P3

**CIDN:**

0534 0200001

**Central Registry:**

0250/Y1

**LES ENSEMBLES  
RÉSIDENTIELS ET LA  
SÉCURITÉ ROUTIÈRE**

**Objet :**

La présente recherche porte sur l'étude des rapports entre la forme des milieux résidentiels et la sécurité des déplacements des différents usagers de la routes.

**Division :**

Division de la recherche  
Programme de subventions de recherche

**Contractant :**

Denise Piché  
École d'architecture  
Université Laval  
Québec (Québec)  
G1K 7P4

**NIC :**

0925 0200001

**Numéro de la gestion des  
documents :**

6585/P019-2

**POST-SYMPOSIUM REPORT -  
NEW VISIONS IN URBAN  
TRANSPORTATION**

**Objective:**

To support the preparation of the post symposium report for new visions in urban transportation, as generated in a symposium convened by the Federation of Canadian Municipalities, Canadian Institute of Planners and the Transportation Association of Canada.

**Division:**

Research Division

**Contractor:**

Transportation Association of  
Canada  
2323 St. Laurent Boulevard  
Ottawa, Ontario  
K1G 4K6

**CIDN:**

1308 0200001

**Central Registry:**

6855-2

### DEVELOPMENT OF EFFICIENCY IMPROVEMENT TIMELINESS FOR RESIDENTIAL VENTILATION EQUIPMENT

#### Objective:

To assemble information on residential mechanical ventilation equipment (fans, blowers, heat exchangers) to develop a consensus on how quickly the efficiency of these devices can and should be improved over the next decade.

#### Division:

Research Division

#### Contractor:

Buchan Lawton Parent Ltd.  
5370 Canotek Road  
Ottawa, Ontario  
K1J 8X7

#### CIDN:

1242 0200001

#### Central Registry:

6766-4

### EASE AIR BARRIER SYSTEM

#### Objective:

To aid the APCHQ and NRCan in the construction and evaluation of the EASE Demonstration Project. An energy-efficient house was constructed using a new wall assembly which incorporates a structural air barrier that is permeable to water vapour. The air barrier allows excess humidity in the home to migrate through the walls without causing wall degradation. This project will evaluate the performance of this wall assembly for moisture migration and structural soundness.

#### Division:

Housing Innovation Division

#### Contractor:

Morrison Hershfield Ltd.  
2440 Don Reid Drive  
Ottawa, Ontario  
K1H 8P5

#### CIDN:

1044 0300002

#### Central Registry:

6796-17

### ELECTRONIC SMOKE PENCIL

#### Objective:

The design and development of a battery operated electronic air leakage detection device.

#### Division:

Research Division

#### Contractor:

Sigmin Enterprises  
9 Milne Crescent  
Kanata, Ontario  
K2K 1H7

#### CIDN:

1269 0200001

#### Central Registry:

6521-28/93

### HARMONIZATION OF VENTING TERMINOLOGY

#### Objective:

To identify all Canadian and United States of America codes and standards that use venting terms, developing a set of harmonized terms and definitions used in venting codes and standards.

#### Division:

Research Division

#### Contractor:

Buchan Lawton Parent Ltd.  
5370 Canotek Road  
Ottawa, Ontario  
K1J 8X7

#### CIDN:

1078 0200001

#### Central Registry:

6718-15-1



### REVISIONS TO THE RESIDENTIAL VENTILATION "HOW TO" MANUAL

**Objective:**

To make appropriate revisions to the previously developed manual.

**Division:**

Housing Innovation Division

**Contractor:**

Ontario New Home Warranty  
Program  
North York City Centre  
North East Tower, 6th Floor  
5160 Yonge Street  
North York, Ontario  
M2N 6L9

**CIDN:**

0978 0300003

**Central Registry:**

6509-2

### SCIENTIFIC RESEARCH AND DEVELOPMENT CONCERNING VENTILATION SYSTEMS FOR NEW AND EXISTING HOUSES WITH ELECTRIC BASEBOARD HEATING

**Objective:**

To identify designs of simple ventilation air distribution systems that are suitable for new and existing houses that lack fully ducted forced-air heating systems.

**Division:**

Research Division

**Contractor:**

National Research Council  
Institute for Research in  
Construction  
Building M-20  
Ottawa, Ontario  
K1A 0R6

**CIDN:**

1124 0800001

**Central Registry:**

6725-18-1

### VENTILATION CONTROL IN MEDIUM AIRTIGHTNESS HOUSES

**Objective:**

To monitor houses with mechanical ventilation controlled by sensing outdoor air temperature. Nitrogen oxide produced by combustion equipment will also be measured and compared to health guidelines.

**Division:**

Research Division  
Panel on Energy R&D

**Contractor:**

Saskatchewan Research  
Council  
Building Science Division  
15 Innovation Boulevard  
Saskatoon, Saskatchewan  
S7N 2X8

**CIDN:**

1179 0800001  
1179 0200001

**Central Registry:**

6716-17-1

### VENTILATION RESEARCH REPORT

**Objective:**

To carry out support to ventilation standards research: the work shall include four houses.

**Division:**

Research Division  
Panel on Energy R&D

**Contractor:**

Everts-Lind Enterprises  
R.R.#3  
Bridgewater, Nova Scotia  
B4C 2W2

**CIDN:**

0814 0801001

**Central Registry:**

6730-5-7

## Ongoing Projects/Projets en cours

### HIGH FREQUENCY WATER SHUT OFF CONTROL

#### Objective:

Develop a working prototype  
of the high frequency water  
shut off control unit.

#### Division:

Research Division

#### Contractor:

Victor J. Diduck  
755 Kyle Drive  
Kamloops, British Columbia  
V2B 7J5

#### CIDN:

1265 0200001

#### Central Registry:

6521-18393

## Ongoing Projects/Projets en cours

### MEASUREMENT OF SPECTRAL TRANSMITTANCE OF REPRESENTATIVE GLAZING SAMPLES

**Objective:**

To obtain the spectral transmittance data of a representative group of window glazings including two-pane and three-pane assemblies with and without low-emissivity coatings; to present the data in a manner that would allow comparisons of the spectral characteristics of the window assemblies.

**Division:**

Research Division

**Contractor:**

University of Calgary  
Centre for Livable  
Communities  
2500 University Drive N.W.  
Calgary, Alberta  
T2N 0G3

**CIDN:**

1214 1100004

**Central Registry:**

6717-18

### A SURVEY OF HEALTH EFFECTS OF LOW-E WINDOWS

**Objective:**

To determine if there is any existing evidence of a possible health impact of low-e windows on people.

**Division:**

Research Division

**Contractor:**

Murray Waldman  
Suite 1200  
191 Lombard Avenue  
Winnipeg, Manitoba  
R3B 0X1

**CIDN:**

1214 1100002

**Central Registry:**

6717-18

## WOMEN/FEMMES

### Ongoing Projects/Projets en cours

#### PAPER FOR OECD PROJECT WOMEN IN THE CITY

##### Objective:

To bring together a group of Canadian experts in a collaborative undertaking to consider OECD's conference proposal and produce a draft Canadian position paper on it.

##### Division:

International Relations  
Division

##### Contractor:

Carleton University  
1125 Colonel By Drive  
Dunton Tower, 15th Floor  
Ottawa, Ontario  
K1S 5B6

##### CIDN:

1075 0900002

##### Central Registry:

4305-4-14



- Alternative mortgage instruments / Nouveaux modes de financement hypothécaire  
(Rev. 15 p., October/octobre 1984)
- Architecture in Canada / L'architecture du Canada  
(18 p., July/juillet 1983)
- Building and climatic factors / Construction et des éléments climatiques  
(7 p., November/novembre 1983)
- Building in cold climates / Construction dans les pays froids  
(Rev. 9 p., December/décembre 1989)
- Building laws / Législation de la construction  
(Rev. 25 p., October/octobre 1986)
- Building materials / Matériaux de construction  
(14 p., August/août 1987)
- Building product information / Information sur les produits pour le bâtiment  
(7 p., August/août 1984)
- Children in the urban environment / Les enfants dans le milieu urbain  
(23 p., January/janvier 1993)
- Computer-aided architectural design / Dessins architecturaux par ordinateur  
(Rev. 2 p., September/septembre 1984)
- Condominium conversion / Immeubles d'habitation - transformation en copropriétés  
(12 p., May/mai 1986)
- Condominiums / Copropriétés  
(Rev. 12 p., March/mars 1986)
- Congregate housing / Habitat collectif  
(10 p., November/novembre 1991)
- Construction industry in Canada / Industrie de la construction au Canada  
(Rev. 27 p., January/janvier 1988)
- Construction industry labour / Main-d'oeuvre de la construction  
(6 p., February/février 1988)
- Cooperative housing / Coopératives de logements  
(Rev. 40 p., September/septembre 1988)
- Crime prevention and architectural design / Design architectural et prévention de la criminalité  
(7 p., May/mai 1989)
- Crime prevention and urban safety in residential environments / La prévention du crime et la sécurité dans les milieux résidentiels urbains  
(12 p., September/septembre 1989).
- Deinstitutionalization  
(7 p., June/juin 1988)
- Desktop Publishing  
(3 p., March/mars 1988)
- Development rights transfer / Transfer de droits de développement  
(8 p., December/décembre 1985)

- Discrimination and segregation in housing in Canada / Bibliographie sur la discrimination et la ségrégation dans le logement au Canada  
(5 p., November/novembre 1991)
- Downtown redevelopment / Réaménagement de centres-villes  
(Rev. 26 p., January/janvier 1989)
- Energy conservation in multiple housing / Économie d'énergie dans les logements collectifs  
(Rev. 3 p., June/juin 1983)
- Examples of housing program evaluations / Exemples d'évaluations de programmes de logement  
(3 p., January/janvier 1982)
- Expandable housing / Les logements expansibles  
(October/octobre 1985)
- Experimental houses / Maisons expérimentales  
(6 p., January/janvier 1983)
- External Research Program Reports arranged by subject / Rapports du programme de recherche à l'extérieur par sujet  
(Rev. 31 p., October/octobre 1993)
- False Creek, Vancouver, British Columbia / False Creek, Vancouver, Colombie-Britannique  
(Rev. 4 p., November/novembre 1984)
- Federal/provincial relations and housing / Relations fédérales/provinciales et le logement  
(3 p., June/juin 1987)
- Foundations / Fondations  
(17 p., January/janvier 1989)
- Geodesic domes / Domes géodésiques  
(4 p., November/novembre 1983)
- Graduated payment mortgages / Prêts hypothécaires à paiements progressifs  
(Rev. 3 p., October/octobre 1991)
- Group homes / Foyers de groupe  
(Rev. 5 p., May/mai 1986)
- Halfway houses / Foyers de groupe  
(Rev. 5 p., May/mai 1986)
- Home care vs institutional care / Soins à domicile ou en établissement  
(3 p., April/avril 1982)
- Home equity conversion / Conversion de la valeur nette du logement  
(9 p., October/octobre 1988)
- Home ownership / La propriété d'un logement  
(Rev. 28 p., August/août 1987)
- Homelessness / Sans-logis  
(Rev. 8 p., July/juillet 1987)
- House designs - annotated / Modèles de maisons - annotée  
(12 p., June/juin 1984)
- Housing and AIDS / Hébergement des personnes atteintes du SIDA  
(5 p., September/septembre 1993)
- Housing and services for the disabled / Logement et les services pour les handicapés  
(Rev. 68 p., April/avril 1992)

- Housing and the elderly / Le logement et les personnes âgées  
(Rev. 78 p., September/septembre 1988)
- Housing conversion and residential intensification / Conversion d'habitations et intensification résidentielle  
(Rev. 8 p., October/octobre 1990)
- Housing costs / Prix des maisons  
(12 p., August/août 1985)
- Housing demand / La demande en logement  
(22 p., November/novembre 1986)
- Housing density / Densité d'habitation  
(7 p., September/septembre 1985)
- Housing for immigrants and minorities / Logement pour les groupes ethniques et immigrants  
(7 p., May/mai 1993)
- Housing for single parent families / Le logement et les familles monoparentales  
(Rev. 6 p., May/mai 1986)
- Housing for single people / Le logement et les personnes seules  
(3 p., September/septembre 1984)
- Housing in Canadian municipalities / Logement dans les municipalités canadiennes  
(Rev. 44 p., March/mars 1985)
- Housing in New Brunswick / Logement au Nouveau-Brunswick  
(7 p., March/mars 1987)
- Housing in Newfoundland / Logement à Terre-Neuve  
(6 p., March/mars 1987)
- Housing in Nova Scotia / Logement en Nouvelle-Écosse  
(11 p., May/mai 1987)
- Housing in Prince Edward Island / Logement dans l'Île-du-Prince-Édouard  
(4 p., April/avril 1987)
- Housing in the Atlantic Provinces / Logement dans la région de l'Atlantique  
(4 p., April/avril 1987)
- Housing in urban core areas / Logement dans les centres-villes  
(Rev. 13 p., January/janvier 1985)
- Housing management / Gestion des logements  
(Rev. 23 p., January/janvier 1989)
- Housing markets / Le marché du logement  
(Rev. 36 p., January/janvier 1988)
- Housing policy in Canada / Politique du logement au Canada  
(Rev. 45 p., January/janvier 1987)
- Housing quality / Qualité de logement  
(8 p., January/janvier 1988)
- Housing renovation / Restauration de quartiers résidentiels  
(Rev. 62 p., March/mars 1988)
- Housing stock / Stocks d'habitations  
(8 p., February/février 1987)

- Housing subsidies / Subventions au logement  
(Rev. 49 p., October/octobre 1990)
- Housing tenure / Status d'occupation des logements  
(4 p., March/mars 1982)
- Impact of inflation on house prices / Effets de l'inflation sur le prix des maisons  
(Rev. 4 p., August/août 1985)
- Indoor air pollution / Pollution de l'air des habitations  
(Rev. 29 p., July/juillet 1990)
- Infill housing / Logement résidentiel complémentaire  
(Rev. 8 p., March/mars 1990)
- Inner cities / Centres-villes  
(Rev. 9 p., January/janvier 1985)
- Insulation / Isolement  
(Rev. 33 p., November/novembre 1991)
- Intelligent buildings / Bâtiments intelligents  
(3 p., February/février 1987)
- Land banks and land trusts / Banques agraires et sociétés foncières  
(October/octobre 1990)
- Land use and energy conservation / Occupation du sol et l'économie d'énergie  
(Rev. 4 p., August/août 1983)
- LeBreton Flats / Les Plainnes LeBreton  
(Rev. 9 p., April/avril 1986)
- Life cycle costing / Estimations du coût global  
(Rev. 9 p., November/novembre 1992)
- Lofts / Lofts  
(1 p., January/janvier 1983)
- Log structures / Constructions en pièce sur pièce  
(Rev. 8 p., April/avril 1989)
- Low cost affordable housing / Habitation à coût modique  
(Rev. 35 p., October/octobre 1989)
- Low energy housing / L'habitation à consommation réduite d'énergie  
(8 p., June/juin 1984)
- Manufactured housing / Habitation préfabriquée  
(Rev. 33 p., November/novembre 1986)
- Moisture problems in buildings / Humidité dans les constructions  
(Rev. 21 p., July/juillet 1990)
- Mortgage-backed securities / Titres hypothécaires  
(13 p., March/mars 1988)
- Mortgage insurance / L'assurance hypothécaire  
(11 p., April/avril 1988)
- Mortgages / Hypothèques  
(Rev. 21 p., August/août 1984)
- Municipal energy management / Gestion de l'énergie dans les municipalités  
(Rev. 10 p., September/septembre 1983)



- MURBs and RHOSPs / IRLMs et REELs  
(4 p., April/avril 1986)
- Native housing / Logement pour autochtones  
(20 p., January/janvier 1988)
- Neighbourhood improvement programs / Programme d'amélioration des quartiers  
(8 p., May/mai 1982)
- Neighbourhood preservation / Conservation du quartier  
(6 p., May/mai 1982)
- Noise / Le bruit  
(27 p., December/décembre 1991)
- Non-profit housing / Le logement à but non-lucratif  
(Rev. 19 p., October/octobre 1989)
- Playgrounds / Terrains de jeux  
(Rev. 30 p., December/décembre 1991)
- Post occupancy evaluation / Évaluation après occupation  
(13 p., February/février 1989)
- Privatisation of Public/Council Housing in Great Britain  
(6 p., June 1987)
- Program evaluation / L'évaluation de programme  
(Rev. 17 p., October/octobre 1986)
- Property tax / L'impôt sur la fortune  
(7 p., February/février 1985)
- Proposal writing / Rédaction de projets  
(5 p., August/août 1988)
- Public housing in Canada / Habitations à loyer modéré au Canada  
(Rev. 63 p., September/septembre 1991)
- Public/Private Partnerships / Association du secteur public et du secteur privé  
(12 p., December/décembre 1989)
- R-2000 bibliography / Bibliographie sur R-2000  
(7 p., September/septembre 1987)
- Radon and houses / Radon dans les habitations  
(Rev. 23 p., July/juillet 1990)
- Railway relocation / Déplacement de voie ferrée  
(6 p., October/octobre 1982)
- Real estate in Canada / Propriété immobilière au Canada  
(Rev. 37 p., September/septembre 1987)
- Real property appraisal / Évaluation de la propriété immobilière  
(12 p., April/avril 1984)
- Reinsurance / Réassurance  
(3 p., July/juillet 1987)
- Rent control / Contrôle des loyers  
(Rev. 20 p., August/août 1990)
- Rental housing / Logement locatif  
(53 p., October/octobre 1990)

Research methods / Méthodes de recherche  
(6 p., December/décembre 1983)

Residential development / Développement résidentiel  
(Rev. 57 p., July/juillet 1991)

Residential displacement, relocation, and gentrification / Relogement, relocalisation,  
et embourgeoisement  
(19 p., September/septembre 1988)

Residential energy conservation / Économies d'énergie dans l'habitation  
(19 p., June/juin 1983)

Residential Rehabilitation Assistance Program / Programme d'aide à la remise en état des  
logements  
(8 p., February/février 1988)

Resource communities / Villes d'exploitation de ressources  
(Rev. 15 p., March/mars 1988)

Retirement and life care communities / Collectivités de retraités et communautés  
fournissant des soins à vie  
(Rev. 10 p., March/mars 1990)

Rooming houses / Maisons d'hébergement  
(3 p., May/mai 1986)

Rural housing / Logement rural  
(Rev. 18 p., March/mars 1988)

Safety in the home / La sécurité au foyer  
(4 p., July/juillet 1988)

Scholarship Program 1980 - 1985 / Programme des bourses d'étude 1980 - 1985  
(24 p.)

Secondary mortgage markets / Marchés hypothécaires secondaires  
(6 p., August/août 1982)

Self-help housing / Autoconstruction  
(Rev. 13 p., January/janvier 1989)

Shared appreciation mortgages / Prêts hypothécaires avec participation à la plus-value  
(Rev. 2 p., October/octobre 1984)

Shared housing / Logement à contrepartie de travaux  
(Rev. 11 p., October/octobre 1991)

Small apartment design / Conception de petits appartements  
(2 p., October/octobre 1985)

Small houses / Les petites maisons  
(5 p., October/octobre 1986)

Smart house / Maison automate  
(Rev. 12 p., December/décembre 1990)

Solar access rights / Droit au soleil  
(Rev. 8 p., October/octobre 1992)

Solar heating / Chauffage solaire  
(Rev. 16 p., October/octobre 1992)

Solar houses / Maisons solaires  
(Rev. 22 p., October/octobre 1992)

- Stackwall house construction / Construction de maisons de "bois cordé"  
(Rev. 1 p., September/septembre 1983)
- Strategic planning / Planification stratégique  
(8 p., September/septembre 1986)
- Student housing / Logement pour les étudiants  
(Rev. 6 p., July/juillet 1989)
- Suburbs / Banlieues  
(Rev. 9 p., September/septembre 1983)
- Technology transfer and the construction industry / Transfert de la technologie dans le secteur de la construction  
(8 p., December/décembre 1986)
- Temporary shelter for battered women / L'hébergement temporaire pour les femmes victimes de violence  
(Rev. 11 p., May/mai 1991)
- Underground housing / Maisons souterraines  
(Rev. 5 p., March/mars 1985)
- Urban planning in Canada / Urbanisme au Canada  
(25 p., November/novembre 1982)
- User participation in housing design for the elderly / Participation des usagers dans la conception de logements pour personnes âgées  
(Rev. 5 p., June/juin 1984)
- Vacation Homes / Chalets  
(29 p., November/novembre 1991)
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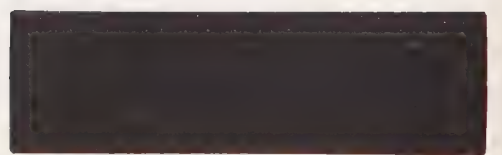
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Volume 1  
Number 2  
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## INTRODUCTION/INTRODUCTION

Under Part IX of the National Housing Act the Government of Canada provides funds to Canada Mortgage and Housing Corporation to conduct research into the social, economic and technical aspects of housing and related fields.

*Housing Research* is compiled and produced on a quarterly basis by the Canadian Housing Information Centre. This publication provides information and access to research which is undertaken and sponsored by the Corporation.

The publication contains information on completed research reports, new publications, videos and bibliographies, as well as ongoing research projects. An alphabetical title index of items listed is included at the end for quick reference.

"Ongoing Projects" refer to research projects which are currently underway. No reports are yet available. Once the project is completed, and a report is available for distribution, it will be listed in *Housing Research* under the "Completed Reports" area with a full bibliographic citation and abstract. The "Ongoing Projects" sections of *Housing Research* contain the following information:

**Title:**

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**Objective:**

Gives a brief description of the project.

**Division:**

Division within CMHC which is managing the project.

**Contractor:**

Individual or firm undertaking the research.

**CIDN:**

Contract Identification Number.

**Central Registry:**

File number to be used to store correspondence between CMHC and the contractor.

En vertu de la Partie IX de la loi nationale sur l'habitation le gouvernement du Canada fournit des fonds à la Société canadienne d'hypothèques et de logement pour la recherche sur les aspects sociaux, économiques et techniques du logement et des domaines connexes.

*Recherche en logement* est produit chaque trimestre par le Centre canadien de documentation sur l'habitation. Il contient des renseignements sur la recherche entreprise et subventionnée par la Société.

La publication présente des renseignements sur les rapports de recherche, les nouvelles publications, les vidéos et les bibliographies, ainsi que sur les projets de recherche en cours. Une liste alphabétique par titres, facile à consulter, se trouve à la fin de l'ouvrage.

Tous les projets non terminés, n'ayant pas encore fait l'objet d'un rapport sont des «projets en cours». Une fois qu'il sera terminé, publié et disponible, le rapport figurera dans la publication *Recherche en logement* sous la rubrique «Rapports terminés» avec références bibliographiques et sommaire. Les sections «Projets en cours» de *Recherche en logement* contiennent les renseignements suivants :

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Titre du projet, qui n'est pas nécessairement le même que celui du rapport final.

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Brève description du projet.

**Division :**

Division de la SCHL chargée de gérer le projet.

**Contractant :**

Personne ou firme chargée de la recherche.

**NIC :**

Numéro d'identification du contrat.

**Numéro de la gestion des documents :**

Numéro de dossier, sous lequel sera classée la correspondance entre la SCHL et la partie contractante.



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### **ISOLATION SONORE - PORTES DE GARAGES ET CHUTES À DÉCHÊTS**

#### **Objet :**

Élaborer des méthodes  
génériques d'installation des  
portes de garage et de chutes  
à déchets, respectueuses des  
contraintes budgétaires,  
structurales, spatiales et  
pratiques inhérentes à tout  
projet de construction.

#### **Division :**

Division de la recherche  
Programme de subvention de  
recherche

#### **Contractant :**

Michel Morin  
MJM Conseillers en  
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Suite 440  
Montréal (Québec)  
H3S 2A6

#### **NC :**

1096 0200001

#### **Numéro de la gestion des documents :**

6585/M088-4

### **MODELLING OF ROAD NOISE AND OPTIMAL BARRIER DESIGN**

#### **Objective:**

This study will apply the  
newly developed modelling  
tools to the prediction of road  
noise attenuation utilizing  
barriers and berms.

#### **Division:**

Research Division  
External Research Program

#### **Contractor:**

Dr. Ken R. Fyfe  
Department of Mechanical  
Engineering  
University of Alberta  
Edmonton, Alberta  
T6G 2G8

#### **CIDN:**

1086 0200001

#### **Central Registry:**

6585/F039

#### RÉGULATION DES EAUX PLUVIALES DESTINÉE À PRÉVENIR L'INONDATION DES SOUS-SOLS.

*Préparé par CH2M Hill Engineering Limited, Consultant principal : Tom Field. Préparé pour la Division de la recherche, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1992.*

Pour évaluer les cas d'inondation de sous-sols causés par les eaux pluviales, 10 municipalités du Canada ont fait l'objet d'une enquête en 1991, et les réponses au questionnaire ont été compilées de façon à documenter les problèmes et les mesures correctives adoptées. Afin d'étoffer le dossier, l'auteur a passé en revue des études effectuées antérieurement par la SCHL et CH2M Hill. Dans le dessein de déterminer les causes de l'inondation des sous-sols du point de vue du drainage urbain, il a évalué les réponses aux questions et les études antérieures. Il a cerné des moyens d'empêcher le phénomène, en particulier lors du réaménagement des centres-villes.

Le rapport a mis en relief les facteurs et formules d'aménagement qui empêchent souvent de bien comprendre la conception des systèmes de drainage urbains. Les aspects techniques du problème de l'inondation des sous-sols, par exemple le drainage des terrains, la surcharge des égouts et le débit du réseau principal, ont été passés en revue. L'étude a montré que les cas d'inondation des sous-sols sont fréquents au Canada et que le manque de compréhension des concepteurs de systèmes de drainage urbains, quant à la réaction globale de leurs systèmes face aux conditions rencontrées, nuit sérieusement à la résolution des problèmes.

Le rapport conclut que, compte tenu de l'effet à long terme de l'inondation des sous-sols sur la santé, les besoins d'inspection du drainage des terrains, y compris des prolongements des descentes pluviales; du nivellement du sol et du déversement des drains de fondation, doivent revêtir autant d'importance qu'en électricité et en plomberie lors de la construction des immeubles et occuper la place qui leur revient dans les codes et les normes. Les municipalités devront veiller à ce que le Code national du bâtiment et le Code canadien de la plomberie (ou les équivalents provinciaux) soient compatibles avec les règlements de drainage locaux régissant les aménagements résidentiels, assurant ainsi en tout temps l'exploitation saine de la maison en tant que système.

NOTE : Also available in English under the title: *Stormwater Control to Prevent Basement Flooding.*

#### STORMWATER CONTROL TO PREVENT BASEMENT FLOODING.

*Prepared by CH2M Hill Engineering Ltd.; Principal consultant, Tom Field. Prepared for Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1992.*

To evaluate flooding caused by stormwater, 10 municipalities across Canada were interviewed in 1991, and questionnaire responses were compiled to document the problems and the remedial measures applied. Studies performed previously by CMHC and CH2M Hill were reviewed. To determine the causes of basement flooding from an urban drainage system viewpoint, the findings from the questionnaire responses and the previous studies were evaluated. Potential solutions to prevent the problem, particularly in inner city redevelopments, were identified.

The report highlighted planning and procedural factors that frequently inhibit a fuller understanding of urban drainage design. Engineering aspects of the basement flooding problem, such as on-lot drainage, sewer surcharge, and major system flow, were also discussed. The study found that basement flooding was common across Canada and that the lack of understanding by system designers of how urban drainage systems behave under wet weather conditions was a serious impediment to successful resolution of the problem.

The report concluded that, due to the long-term health impacts of basement flooding, inspection requirements for on-lot drainage, including roof leader extensions, lot grading, and foundation drain discharges, should be on an equal footing with electrical and plumbing components for building construction and be so reflected in the appropriate codes and standards. Municipalities should ensure that the National Building Code and National Plumbing Code (or their provincial counterparts) are compatible with local drainage ordinances that govern residential developments, thereby enabling ongoing, healthy operation of the house-as-a-system.

NOTE: Aussi disponible en français sous le titre : *Régulation des eaux pluviales destinée à prévenir l'inondation des sous-sols.*



## Completed Reports/Rapports terminés

### **DOCUMENT DE TRAVAIL SUR LE CODE NATIONAL DU BÂTIMENT DU CANADA : RAPPORT PRÉPARÉ POUR LA SOCIÉTÉ CANADIENNE D'HYPOTHÈQUES ET DE LOGEMENT.**

*Préparé par Revay and Associates Limited. Ottawa : SCHL, 1994.*

Les éditions de 1995 du Code national du bâtiment (CNB), du Code national de prévention des incendies, du Code canadien de construction d'habitations, du Code canadien de la plomberie et du Code canadien de construction des bâtiments agricoles en sont tous au dernier stade de la révision. Il en est de même du texte de deux nouveaux codes qui doivent aussi être publiés en 1995, le Code national de l'énergie pour les habitations et le Code national de l'énergie pour les bâtiments. Ce rapport décrit les origines et l'évolution du Code national du bâtiment et donne un aperçu des modifications proposées de l'édition de 1995 du CNB. Il passe également en revue cinq questions principales relativement aux codes du bâtiment au Canada et aux règlements connexes. Elles comprennent :

- l'harmonisation de la réglementation du bâtiment sur l'ensemble du Canada;
- l'élargissement de la portée des codes modèles nationaux;
- le grand défi que pose la révision des codes;
- les effets des modifications du Code du bâtiment sur les coûts de construction, l'abordabilité du logement et la compétitivité mondiale; et
- le système d'application de la réglementation du bâtiment.

NOTE : Also available in English under the title: *Issues Paper on the National Building Code of Canada: A Report Prepared for Canada Mortgage and Housing Corporation.*

**ISSUES PAPER ON THE NATIONAL BUILDING CODE OF CANADA:  
A REPORT PREPARED FOR CANADA MORTGAGE AND HOUSING  
CORPORATION.**

*Prepared by Revay and Associates Limited. Ottawa: CMHC, 1994.*

The 1995 editions of the National Building Code (NBC), National Fire Code, Canadian Housing Code, Canadian Plumbing Code and Canadian Farm Building Code are all in their final stages of review. The texts of two new codes -- the National Energy Code for Houses, and the National Energy Code for Buildings -- are also due to be issued in 1995. This report describes the origins and evolution of the National Building Code and outlines the proposed code revisions for the 1995 edition. It also reviews the five principal issues concerning building codes and regulations in Canada today. They include:

- The harmonization of building regulations across Canada;
- The expanding scope of national model codes;
- The daunting challenge of code revision;
- The impact of building code changes on construction costs, housing affordability and global competitiveness; and
- The enforcement of building regulations.

NOTE: Aussi disponible en français sous le titre : *Document de travail sur le Code national du bâtiment du Canada : rapport préparé pour la Société canadienne d'hypothèques et de logement.*

#### **CASTONE - COMPOSITE PANEL CLADDING.**

*Prepared by Peter J. Goodings, Castone Industries Inc. Prepared for Planning and Responsive Programs, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994. (Housing Technology Incentives Program).*

CASTONE is a panel building product simulating natural stone or any textured surface. Each panel has a cementitious outer shell, which is moulded to impart any desired texture, bonded to a high-density polyurethane core/backing. The entire panel is about 2" thick with a weight of 4.5 lbs. per square foot. Originally, CASTONE was made in a 4' x 4' panel size, using an eight-panel system. A second generation panel has been designed and employs a new-material formulation and a lighter weight 3' x 2' uni-panel design.

In terms of chemical composition, there were several improvements made in the new prototype. The cement shell was left intact; however, a polysiloxane sealant was added to the material to ensure that the panel surface would survive the effects of acid rain, UV exposure and water infiltration. The chemical composition of the cement shell was not altered because it was determined, through testing, that the material performed very well. It was also felt that altering an already complex material would lead to too many random variables in production. The polyurethane core was modified with a lighter density foam. The lighter density foam improved insulation value while lowering production costs and also yielded a lighter panel.

This report describes the prototype development of the CASTONE panel as well as the techniques for its installation. Installation can be achieved year-round, in all weather conditions, employing an easy-to-use track and clip system. The panels can be cut using standard tools such as carpenter's hand saws, circular saws or sabre saws, and can be conveniently drilled using standard high-speed drill bits.

## **FIELD TEST OF IMPROVED WALLS**

### **Objective:**

To carry out monitoring on a highrise residential building in Ottawa to assess performance of the brick veneer/steel stud envelope.

### **Division:**

Housing Innovation Division

### **Contractor:**

Keller Engineering Associates Inc.  
1390 Prince of Wales Drive  
Ottawa, Ontario  
K2C 3N6

### **CIDN:**

0411 0301001  
0411 0302001  
0411 0303001

### **Central Registry:**

6796-3-6

## **PREPARATION OF BEST PRACTICE GUIDE FOR FLASHING DETAILS, MASONRY VENEER/ CONCRETE BLOCK CONSTRUCTION AND WOODFRAME CONSTRUCTION**

### **Objective:**

To prepare three guides on building envelope design: 1) a 'best practice' guide for concrete block exterior wall construction; 2) a 'best practice' guide for various exterior wall assemblies with wood frame construction; 3) a 'best practice' guide for the flashing of wood, concrete and steel frame building envelopes. The documents will contain details, specifications, sequence of construction and information on inspection and commissioning.

### **Division:**

Housing Innovation Division

### **Contractor:**

Robert Halsall & Associates/Otto & Bryden Arch.  
210 Gladstone Avenue  
Ottawa, Ontario  
K2P 0Y6

### **CIDN:**

0974 0300001

### **Central Registry:**

6503-15

## **PREPARE A BEST PRACTICE GUIDE FOR MASONRY VENEER/STEEL STUD EXTERIOR WALL CONSTRUCTION**

### **Objective:**

To prepare a best practice guide for steel stud exterior wall construction: collect and review recent publications, solicit suggestions for additional material to review from authors of known publications and from manufacturers of steel studs.

### **Division:**

Housing Innovation Division

### **Contractor:**

Posey Construction  
Specifications  
P.O. Box 1756  
Station M  
Calgary, Alberta  
T2P 2L8

### **CIDN:**

0839 0300001

### **Central Registry:**

6503-24



### Ongoing Projects/Projets en cours

#### **TESTING OF REINFORCED OR PRE-STRESSED BRICK VENEER WALL SYSTEMS USING A BRICK VENEER WALL SYSTEM**

##### **Objective:**

To demonstrate the feasibility and potential for this brick veneer wall system, and to identify further research and development needs including laboratory investigations, design details, and construction guidelines.

##### **Division:**

Research Division  
Housing Technology  
Incentives Program

##### **Contractor:**

Canada Brick  
2121 Britannia Road West  
Box 668  
Streetsville, Ontario  
L5M 2C3

##### **CIDN:**

1177 0200001

##### **Central Registry:**

6521-7-93

#### **ZERO-CAVITY, PRESSURE EQUALIZED RAINSCREEN WALL SYSTEM**

##### **Objective:**

To investigate the performance of the zero-cavity, pressure equalized rainscreen wall system. To investigate the consequences of completely filling the air space behind brick cladding with a fibrous, draining insulation to answer the following questions: can masons build this wall, will the insulation drain, will the cavity pressure equalize, will the brick become too warm or too cold, and will the water reach the sheathing by capillary action?

##### **Division:**

Housing Innovation Division

##### **Contractor:**

University of Waterloo  
Building Engineering Group  
Civil Engineering Department  
Waterloo, Ontario  
N2L 3G1

##### **CIDN:**

0689 0300001

##### **Central Registry:**

6793-21-1

### CONCRETE RESTORATION SEMINARS

**Objective:**

To assist CMHC by preparation and presentation of one text for the seminars on concrete restoration and to provide input to the question periods in the seminars.

**Division:**

Research Division

**Contractor:**

Various contractors

**CIDN:**

1253 0200002  
1253 0200003  
1253 0200004  
1253 0200005

**Central Registry:**

6711-7-1

### DEVELOPMENT OF A NEW EDITION OF THE STANDARD FOR CONCRETE CONSTRUCTION FOR HOUSING AND SMALL BUILDINGS (CSA A438)

**Objective:**

To carry out the development of a new edition of the standard for concrete construction for housing and small buildings (CSA A438).

**Division:**

Research Division

**Contractor:**

Canadian Standard Association  
178 Rexdale Boulevard  
Toronto, Ontario  
M9W 1R3

**CIDN:**

1259 0200001

**Central Registry:**

5610-37

### DURABILITY OF FIBRE-REINFORCED PLASTIC (FRP) REBARS IN CONCRETE STRUCTURES

**Objective:**

Scientific research and development concerning the durability of fibre-reinforced plastic (FRP) rebars in concrete structures.

**Division:**

Research Division

**Contractor:**

National Research Council  
1200 Montreal Road  
Ottawa, Ontario  
K1A 0R6

**CIDN:**

1172 0200001

**Central Registry:**

6711-10

### LA RELATION ENTRE LA CONTAMINATION DU SOL URBAIN ET LE LOGEMENT AU CANADA.

*Rédigé par Gardner Church et associés. Résumé d'un rapport préparé pour la Division de la recherche de la Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1994.*

Ce rapport est un résumé des constatations énoncées dans un rapport portant le même titre, rédigé par Gardner Church and Associates. Ce rapport démontre comment la question de la contamination du sol influe directement sur le secteur de l'habitation au point de vue économique, social et environnemental. Étant donné que la construction résidentielle représente une façon viable d'utiliser les terrains ayant eu une vocation industrielle, le secteur de l'habitation pourrait jouer un rôle de premier plan dans la réutilisation des terrains susceptibles d'être contaminés. Toutefois, il faut se conformer aux normes relatives à l'assainissement du sol, qui ont une incidence sur le genre, le nombre et l'abordabilité des logements qui pouvant être construits dans les grandes villes.

L'auteur mentionne que, aussi longtemps que la simple présence de polluants constituera un risque inacceptable et si aucun effort n'est fait afin d'équilibrer les coûts et les avantages de l'assainissement et du réaménagement des terrains au moyen d'une méthode pratique d'évaluation du risque, l'approche actuelle entraînera toujours des répercussions sur les plans environnemental, économique et social.

NOTE : Also available in English under the title: *The Relationship Between Urban Soil Contamination and Housing in Canada.*

### THE RELATIONSHIP BETWEEN URBAN SOIL CONTAMINATION AND HOUSING IN CANADA.

*Prepared by Gardner Church and Associates. Condensed from a report prepared for Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.*

This report summarizes the findings of an earlier report prepared by Gardner Church and Associates under the same title. It shows how the soil contamination issue directly affects the housing industry through related economic, social and environmental impacts. Because housing represents a viable use for post-industrial lands, the industry could play a key role in the reuse of potentially contaminated areas. This is tempered, however, by soil remediation standards which affect the nature, amount and affordability of housing that can be developed in major cities.

The author suggests that as long as the mere presence of contaminants is equated with unacceptable risk, and there is no attempt to balance the costs and benefits of remediation and redevelopment through a practical assessment of risk, then the environmental, economic and social damage of the present approach will continue.

NOTE: Aussi disponible en français sous le titre : *La relation entre la contamination du sol urbain et le logement au Canada.*

**ANALYSIS OF  
ENVIRONMENTAL SITE  
ASSESSMENTS USED IN  
LAND TRANSACTIONS**

**Objective:**

To conduct a survey of the quality and acceptability of environmental site assessments (ESAs) submitted for land transactions; to create a guide to the interpretation of Phase I ESAs.

**Division:**

Research Division

**Contractor:**

Jacques Whitford  
Environment Limited  
2781 Lancaster Road  
Suite 200  
Ottawa, Ontario  
K1B 1A7

**CIDN:**

1255 0200001

**Central Registry:**

6755-6

**DEVELOPMENT OF  
TRAINING & CERTIFICATES  
PROGRAM FOR AESAC,  
THE ASSOCIATION OF  
ENVIRONMENTAL SITE  
ASSESSORS OF CANADA**

**Objective:**

To identify education, skills, knowledge and experience required, and certification and training procedures needed to meet the requirements of institutional lenders, insurers, large property managers, and others.

**Division:**

Research Division

**Contractor:**

AESAC  
1 Sparks Avenue  
Willowdale, Ontario  
M2H 2W1

**CIDN:**

1319 0200001

**Central Registry:**

6755-4-2

**FIELD TESTS OF REMEDIAL  
MEASURES FOR HOUSES  
AFFECTED BY HAZARDOUS  
LANDS**

**Objective:**

To monitor the effectiveness of remedial measures installed in houses across Canada to prevent hazardous soil gases from entering house air.

**Division:**

Research Division

**Contractor:**

CH2M Hill Engineering Ltd.  
180 King Street South  
Suite 600  
Waterloo, Ontario  
N2J 1P8

**CIDN:**

0820 0200001

**Central Registry:**

6719-19



# COOPERATIVE AND NON-PROFIT HOUSING LOGEMENT SANS BUT LUCRATIF ET COOPÉRATIVE

## Completed Reports/Rapports terminés

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### THE EVOLUTION OF MEMBER CONFLICT IN HOUSING CO-OPERATIVES.

*Prepared by Mike Balkwill and Janet Fishlock, Balkwill & Associates. Ottawa: Canada Mortgage and Housing Corporation, 1993 (External Research Program).*

This study examines identifiable patterns to the evolution of conflict in non-profit, community-based organizations, of which housing co-ops are an example, and considers the causes which might account for these patterns. The researchers worked from the premise that the structural circumstances and developmental patterns of organizations place people in inevitable situations of conflict. This premise was tested in three housing co-operatives using a participatory group assessment exercise called Lifeline Analysis.

Through a review of the literature on conflict resolution, organizational theory and relationship theory, and drawing heavily on the conflict cycle presented by the Movement for a New Society, the Journey metaphor offered by Susan Campbell, and the Stratified System theory developed by Elliott Jaques, the authors have suggested a new paradigm and framework for understanding the evolution of conflict in housing co-operatives. This framework places the conflict cycle of co-ops within the larger developmental process of communities as they move from young, idealistic bodies to become mature, interdependent groups.

The authors conclude that conflict is both an indicator of the need for growth and a catalyst for the growth process in organizations. Housing co-operatives, and non-profit organizations, can use this framework to improve the structures of decision making within their organizations and to better understand conflict as an opportunity for growth and development.

**EVALUATION DU  
PROGRAMME PLACEMENT -  
HABITAT**

**Objet :**

Évaluation du programme  
placement - Habitat retenu  
aux termes du Programme de  
subventions de recherche de  
la SCHL - 1992.

**Division :**

Division de la recherche  
Programme de subventions de  
recherche

**Contractant :**

Robert Chagnon et associés  
4209, avenue Oxford  
Montréal (Québec)  
H4A 2Y5

**NIC :**

1085 0200001

**Numéro de la gestion des  
documents :**

6585/C066

**PERTINENCE ET  
FAISABILITÉ DE LA  
FORMULE COOPÉRATIVE  
D'HABITATION - ÉQUITÉ**

**Objet :**

Le projet de recherche porte  
sur la conception et la mise  
en oeuvre d'un programme  
d'auto-développement pour  
le secteur coopératif en  
habitation.

**Division :**

Division de la recherche  
Programme de subventions  
de recherche

**Contractant :**

Madame Marie J. Bouchard  
Centre de gestion des  
coopératives  
333, chemin de la  
Reine-Marie, local 640  
Montréal (Québec)  
H3V 1A2

**NIC :**

1084 0200001

**Numéro de la gestion des  
documents :**

6585/B090-1

**POUR UNE MISE EN  
MARCHE EFFICIENTE  
DES COOPÉRATIVES  
D'HABITATION AVEC  
INVESTISSEMENT DES  
MEMBRES**

**Objet :**

Évaluer le(s) produit(s)  
d'habitation coopérative dans  
une perspective marketing,  
mais aussi, élaborer une  
méthodologie de lancement  
de ces nouveaux concepts.

**Division :**

Division de la recherche  
Programme de subventions  
de recherche

**Contractant :**

Monsieur Guy Ara  
Faculté d'administration  
Université de Sherbrooke  
Sherbrooke (Québec)  
J1K 2R1

**NIC :**

0907 0200001

**Numéro de la gestion des  
documents :**

6585/A39

## Ongoing Projects/Projets en cours

### **BARRIER-FREE AND AUTOMATED DEMONSTRATION HOUSE**

**Objective:**

To carry out the design, construction and display of a "barrier-free and automated demonstration house" including production of video material, commentary, and report.

**Division:**

Research Division

**Contractor:**

Adaptable Housing Ltd.  
#4 - 5839 Vine Street  
Vancouver, British Columbia  
V6M 4A2

**CIDN:**

1229 110001

**Central Registry:**

6535-17-2

### **BARRIER-FREE ENTRANCE DOOR LOCK**

**Objective:**

To develop a design for a product "a barrier-free entrance door lock" that will be easy to retro-fit in standard existing doors and be very easy for persons with limited hand strength or dexterity to operate.

**Division:**

Research Division

**Contractor:**

RBO Architecture  
#1 - 730 West 7th Avenue  
Vancouver, British Columbia  
V5Z 1B8

**CIDN:**

1225 0200001

**Central Registry:**

6521-26/93

### **CRITÈRES DE PERFORMANCE EN ACCESSIBILITÉ UNIVERSELLE ET IMPLICATION ÉCONOMIQUE**

**Objet :**

Porte sur le logement accessible et adaptable et plus particulièrement sur une version économiquement réalisable de l'accessibilité universelle.

**Division :**

Division de la recherche  
Programme de subventions de recherche

**Contractant :**

Madame Sophie Lanctôt  
Société d'habitation  
communautaires logique inc.  
3250, boul. St-Joseph est  
Montréal (Québec)  
H1Y 3G2

**NIC :**

1092 0200001

**Numéro de la gestion des  
documents :**

6585/L052-1

### **AN EXPLORATION OF DESIRABILITY OF HOUSING LOCATION BY CONSUMERS OF PSYCHIATRIC SERVICES**

**Objective:**

To conduct a focus group comprised of tenants from three types of housing, to conduct 60 semi-structured interviews with tenants in the three aforementioned housing settings.

**Division:**

Research Division  
External Research Program

**Contractor:**

Ms. Katherine M. Boydell  
Queen Street Mental Health  
Centre  
1001 Queen Street West  
Toronto, Ontario  
M6J 1H4

**CIDN:**

1272 0200001

**Central Registry:**

6585/B104

### **FEASIBILITY OF DISABILITY-INTEGRATED, UNIVERSALLY DESIGNED INFILL CO-HOUSING IN AN URBAN SETTING**

**Objective:**

To create a document which includes: a model of typical infill co-housing based on current literature and post-occupancy evaluation of existing co-housing developments and their residents, etc.

**Division:**

Research Division  
External Research Program

**Contractor:**

Mr. David Wetherow  
Executive Director  
Association for Community  
Living  
1706 - 90 Garry Street  
Winnipeg, Manitoba  
R3C 4J4

**CIDN:**

1101 0200001

**Central Registry:**

6585/W018-1

## **FOCUS GROUP SESSIONS TO EXAMINE BARRIER-FREE AND ADAPTABLE HOUSING DESIGNS**

### **Objective:**

To obtain the views of older adults, seniors, and adults with various types of disabilities in all age categories, on their levels of interest, needs and preferences relating to barrier-free and adaptable housing.

### **Division:**

Research Division

### **Contractor:**

Hickling Corporation  
350 Sparks Street  
6th Floor  
Ottawa, Ontario  
K1R 7S8

### **CIDN:**

1000 1100002

### **Central Registry:**

6535-13

## **UN GUIDE ILLUSTRÉ DE CARACTÉRISTIQUES DE CONCEPTION FAVORISANT L'ACCESSIBILITÉ**

### **Objet :**

De produire un guide illustré de caractéristiques de conception favorisant l'accessibilité, qui soient adaptables et efficaces par rapport aux coûts tout en pouvant être intégrées dans divers types d'habitations.

### **Division :**

Division de la recherche

### **Contractant:**

Société logique inc.  
3250, boulevard St-Joseph est  
Montréal (Québec)  
H1Y 3G2

### **CIC :**

1240 1100001

## **Numéro de la gestion des documents :**

6535-17-1

## **HOUSING NEEDS OF PEOPLE WITH DISABILITIES**

### **Objective:**

To provide a profile of the housing characteristics and needs of people with disabilities using data from the 1991 Census and post-censal Health and Activity Limitations Survey (HALS).

### **Division:**

Research Division

### **Contractor:**

ARK Research Associates  
165 Hinton Avenue North  
Ottawa, Ontario  
K1Y 0Z9

### **CIDN:**

1045 0200003

### **Central Registry:**

6620-2

## **HOUSING PEOPLE WITH DISABILITIES**

### **Objective:**

Updating of the NHA publications #5467 and 5468: Housing Disabled Persons.

### **Division:**

Research Division

### **Contractor:**

Associated Planning  
Consultants Inc.  
191 Eglinton Avenue East  
Suite 303  
Toronto, Ontario  
M4P 1K1

### **CIDN:**

1298 0200001

### **Central Registry:**

6530-35

## **STUDY OF HOME ADAPTATIONS CARRIED OUT UNDER THE HASI AND RRAP-D PROGRAMS**

### **Objective:**

To determine the range and types of adaptations that are being carried out by various client groups under both programs; assess the effectiveness of the various adaptations in helping people in their daily lives; assess the relative importance of the various types of adaptations in helping people to continue to live in their own homes; determine the costs associated with different types of adaptations; and identify problems or benefits associated with alternative ways of undertaking the work.

### **Division:**

Research Division

### **Contractor:**

Social Data Research Limited  
Suite 750  
130 Slater Street  
Ottawa, Ontario  
K1P 6E2

### **CIDN:**

1128 1100001

### **Central Registry:**

6600-1



#### **ADAPTATION DU LOGEMENT DES AÎNÉS ET DES PERSONNES HANDICAPÉES.**

*Exposé de Luis Rodriguez, Division de la recherche, Société canadienne d'hypothèques et de logement, aux dispensateurs de soins de santé du Bureau de santé de Lambton, le 14 octobre 1993 et au corps médical de l'Hôpital Général de Sarnia le 15 octobre 1993. Organisé et parrainé par l'Association des aînés de Lambton. Ottawa : SCHL, 1994.*

Cet exposé examine certaines conséquences de l'accroissement rapide de la population âgée, au Canada. Il signale quelques problèmes, parmi les plus communs, que les aînés éprouvent dans leur maison et suggèrent des moyens d'adapter celle-ci pour surmonter ces problèmes. Il montre aussi comment les aînés peuvent déterminer les sortes d'adaptations qui seraient préférables, dans leur cas, et explique comment les dispensateurs de soins de santé et de services de soutien et la profession médicale peuvent aider les aînés à demeurer dans leur maison aussi longtemps que possible.

NOTE : Also available in English under the title: *Home Adaptations for Seniors and Persons with Disabilities.*

#### **HOME ADAPTATIONS FOR SENIORS AND PERSONS WITH DISABILITIES.**

*A Presentation by Luis Rodriguez, Research Division, Canada Mortgage and Housing Corporation to Health Care Providers at the Lambton Health Unit, 14 October 1993 and Medical Professionals at the Sarnia General Hospital 15 October 1993. Organized and sponsored by the Lambton Seniors Association. Ottawa: CMHC, 1994.*

This paper examines some of the implications of the rapidly growing senior population in Canada. It identifies some of the most common problems seniors face in their homes and suggests how seniors can adapt their homes to overcome these problems. It also shows how seniors can go about identifying the types of adaptations that are best for them and suggests how health care and support service providers and the medical profession can help seniors remain in their homes for as long as possible.

NOTE: Aussi disponible en français sous le titre : *Adaptation du logement des aînés et des personnes handicapées.*

## **RETIREMENT VILLAGES WITH THE CONSUMER IN MIND.**

*Video cassette (21 mins); VHS. Produced by the Ontario Seniors' Housing Advisory Committee, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1993.*

NOTE: The video is available on loan from CMHC or copies may be purchased at cost for \$9.95.

*Retirement Villages with the Consumer in Mind* is a précis of a 1992 workshop which examined rural retirement villages as a viable housing choice for older Canadians. The video discusses: contributing factors to resident satisfaction; planning for an aging population with zoning and bylaws; design considerations; the marketing of retirement communities; and partnerships between developers and community support organizations. The video also shows which components are essential in successful retirement villages. It will be useful for builders, financiers, designers, marketers and seniors.

NOTE: Aussi disponible en français sous le titre : *Villages-retraite dans l'optique des consommateurs.*

## **VILLAGES-RETRAITE DANS L'OPTIQUE DES CONSOMMATEURS.**

*Vidéocassette (21 min.); VHS. Produit par Le Conseil consultatif de l'Ontario sur le logement des aînés, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1993.*

NOTE : La vidéo est disponible à la SCHL à titre de prêt ou vous pouvez acheter des exemplaires au prix coûtant de 9,95 \$.

*Villages-retraite dans l'optique des consommateurs* est l'abrégé d'un atelier relatif aux villages-retraite ruraux comme choix de logement viable pour les Canadiens âgés. La vidéo examine : les facteurs de satisfaction des résidents; la planification par zonage et arrêtés en fonction d'une population vieillissante; les éléments de conception; la commercialisation pour la collectivité de retraite; et le partenariat entre les promoteurs et les organismes de soutien communautaire. La vidéo présente également les composantes essentielles de villages-retraite ruraux répondant bien aux besoins des aînés. Elle sera d'utilité aux constructeurs, aux financiers, aux concepteurs, aux spécialistes de ce marché et aux aînés.

NOTE : Also available in English under the title: *Retirement Villages with the Consumer in Mind.*

## Ongoing Projects/Projets en cours

### ADAPTING MUNICIPAL HOUSING FOR DEMENTIA

**Objective:**

To contribute to an understanding of what housing providers can do to help residents with dementia age in place.

**Division:**

Research Division

**Contractor:**

Myra Schiff  
213 - 110 Richmond Street  
East  
Toronto, Ontario  
M5C 2P9

**CIDN:**

1286 0200001

**Central Registry:**

6585/S076-1

### THE CHINESE ELDERLY: SOCIAL INTEGRATION IN METRO HOUSING

**Objective:**

A study to ask the ethnic elderly through interviews how they are dealing with their communication needs in an attempt to ascertain the level of congruence between the services being offered and the ethnic composition of the buildings under study.

**Division:**

Research Division  
External Research Program

**Contractor:**

Dr. Morris Saldov  
Ginto Consulting and  
Research  
2 Kensington Avenue  
Toronto, Ontario  
M5T 2J7

**CIDN:**

1285 0200001

**Central Registry:**

6585-S042-5

### COMPUTERIZED SET OF TOOLS THAT WILL ASSIST IN DEVELOPING PROFILES OF THE NEEDS AND PREFERENCES OF SENIORS IN RURAL AREAS

**Objective:**

Design, develop, test and produce a computerized set of tools that can be used by local organizations and agencies to identify the current and future housing and service needs of their senior population and evaluate the options for meeting these needs.

**Division:**

Research Division

**Contractor:**

Tetrad Computer Applications  
Limited  
1445 West Georgia Street  
Vancouver, British Columbia  
V6G 2T3

**CIDN:**

0528 0200001

**Central Registry:**

6530-25

### DEPLOYMENT AND CONTROL OF GARDEN SUITES

**Objective:**

To produce a guide document which deals comprehensively with issues faced by municipalities, suppliers, host families and occupants, in the deployment and use of Garden Suites, and provide practical examples of approaches and tools which can address these issues.

**Division:**

Research Division

**Contractor:**

Allen E. Brass Associates Inc  
8 Burnside Drive  
Toronto, Ontario  
M6G 2M8

**CIDN:**

1120 0200001

**Central Registry:**

6530-5

**DEVELOPMENT AND  
IMPLEMENTATION OF A  
COMMUNICATION PLAN FOR  
THE SENIORS RENOVATION  
ADVISORY NETWORK'S  
SERVICE**

**Objective:**

To raise awareness in the  
Fredericton area of the  
Seniors Renovation Advisory  
Network to ensure that  
seniors fully utilize the service.

**Division:**

Atlantic Region

**Contractor:**

Bissett Matheson  
Communications  
31 William Street  
Fredericton, New Brunswick  
E3A 4V7

**CIDN:**

0883 1351001

**Central Registry:**

6530-37

**THE GRAYING OF CANADIAN  
SUBURBS: PATTERNS, PACE  
AND PROSPECTS**

**Objective:**

To carry out a research  
project entitled the graying of  
Canadian suburbs: patterns,  
pace and prospects and to  
develop a statistical  
perspective on the degree  
and pace of aging of the  
population living in the  
suburban sector of Canada's  
metropolitan areas over the  
period 1971-1991.

**Division:**

Research Division  
External Research Program

**Contractor:**

Dr. Gerald J.F. Hodge  
Coplan Consultants  
427 East 10th Street  
North Vancouver, British  
Columbia  
V7L 2E5

**CIDN:**

0914 0200001

**Central Registry:**

6585/H3.5

**A GUIDE TO PLANNING,  
DESIGNING, DEVELOPING,  
MARKETING AND  
MANAGING HOUSING FOR  
OLDER CANADIANS**

**Objective:**

To produce an easy to follow  
and practical guide document  
that will assist both  
non-profit groups and the  
private sector in planning,  
designing, developing,  
marketing and managing a  
wide range of housing choices  
for older Canadians.

**Division:**

Research Division

**Contractor:**

Baycrest Centre for Geriatric  
Care  
3560 Bathurst Street  
North York, Ontario  
M6A 2E1

**CIDN:**

0869 0200001

**Central Registry:**

6530-1

**HELPING SENIORS AND  
PEOPLE WITH DISABILITIES  
MAINTAIN THEIR  
INDEPENDENCE AT HOME:  
A GUIDE TO DELIVERING  
HOME ADAPTATIONS**

**Objective:**

To produce a how-to guide  
document which will identify  
and describe the steps and  
resources involved in  
planning, designing,  
implementing, managing  
and marketing a variety of  
different approaches to  
delivering home adaptations  
for seniors and persons with  
disabilities.

**Division:**

Research Division

**Contractor:**

University of Manitoba  
Administration Building  
Room 202  
Winnipeg, Manitoba  
R3T 2N2

**CIDN:**

1256 0200001  
1256 1100001

**Central Registry:**

6530-42



## ELDERLY/PERSONNES ÂGÉES

### REGIONAL SENIORS RESEARCH ACTIVITY - ATLANTIC

**Objective:**

To provide services for the production of a video entitled "Seniors Housing Options".

**Division:**

Regional Offices

**Contractor:**

Nova Scotia Department of  
Housing and Consumer Affairs  
P.O. Box 815  
Dartmouth, Nova Scotia  
B2Y 3Z3

**CIDN:**

0883 1350002

**Central Registry:**

0185-142-1

### REGIONAL SENIORS RESEARCH ACTIVITY - ATLANTIC

**Objective:**

To test a model in which trades people retired from the construction field, or other interested volunteers, are trained to inform seniors on home adaptations and repairs.

**Division:**

Regional Offices

**Contractor:**

New Brunswick Department  
of Municipalities, Culture and  
Housing  
P.O. Box 6000  
Fredericton, New Brunswick  
E3B 5H1

**CIDN:**

0883 1350003

**Central Registry:**

0185-142-1

### **AMÉLIORATIONS ÉCONERGÉTIQUES RÉSIDENTIELLES AU CANADA : VUE D'ENSEMBLE ET POSSIBILITÉS.**

*Parrainé par Ressources naturelles Canada, La Société canadienne d'hypothèques et de logement, Le Ministère des Ressources naturelles du Québec, Le Ministère de l'Environnement et de l'Énergie de l'Ontario, et Hydro-Québec. Ottawa : Ministre de Ressources naturelles Canada, 1994.*

En prévision de l'atelier Options réfection, qui s'est tenu les 4 et 5 novembre à Aylmer (Québec), Ressources naturelles Canada a demandé de préparer une étude de base à l'intention des participants. Les objectifs de l'étude étaient les suivants :

- évaluer les besoins du marché canadien et des intervenants clés et les possibilités qui s'offrent à ces derniers sur le plan de l'amélioration éconergétique du parc résidentiel existant;
- donner un aperçu des mesures antérieures et actuelles d'amélioration éconergétique;
- énumérer et évaluer les options d'accroissement de l'activité d'amélioration éconergétique.

Dans le cadre de ce projet, l'équipe d'évaluation a rassemblé les données existantes sur le parc résidentiel canadien; examiné les études antérieures du potentiel d'amélioration éconergétique; consulté divers rapports et publications afin de dresser les profils des attitudes des consommateurs et des industries de la rénovation et des améliorations résidentielles et d'établir les niveaux actuels d'activité; examiné les programmes antérieurs et actuels afin de dégager "les leçons apprises"; dressé une liste préliminaire des initiatives possibles; interrogé les intervenants clés sur ces initiatives potentielles et sur leur perception des débouchés commerciaux possibles, et révisé la liste des initiatives qui seront étudiées par les participants à l'atelier. Ce rapport final fait état des résultats des délibérations et des recommandations de l'atelier et est envoyé à tous les participants.

NOTE : Also available in English under the title: *Home Energy Retrofit in Canada: Overview & Opportunities.*

### **HOME ENERGY RETROFIT IN CANADA: OVERVIEW & OPPORTUNITIES.**

*Sponsored by Natural Resources Canada, Canada Mortgage and Housing Corporation, Le Ministère des ressources naturelles du Québec, Ontario Ministry of Environment and Energy, and Hydro-Quebec. Ottawa: Minister of Natural Resources Canada, 1994.*

In preparation for the Retrofit Options Workshop, which was held in Aylmer, Quebec on November 4-5, 1993, Natural Resources Canada commissioned a background study for use by all workshop participants. The objectives of the study were:

- To assess the needs and opportunities of the Canadian market and key stakeholders, in terms of energy retrofit in the existing residential market;
- To provide an overview of past and present retrofit initiatives; and
- To identify and evaluate options for increasing energy retrofit activity.

In developing this project, the study team assembled existing data on the Canadian housing stock; reviewed past studies of energy retrofit potential; examined various reports and publications to develop profiles on consumer attitudes, the renovation/retrofit industries and current levels of activity; reviewed past and current programs to extract "lessons learned"; developed a preliminary list of possible initiatives; interviewed key stakeholders regarding these initiatives and their perception of the market opportunities; and revised the list of initiatives for consideration by the Workshop participants. This final report includes the results of the Workshop deliberations and recommendations, and is being sent to all participants.

NOTE: Aussi disponible en français sous le titre : *Améliorations éconergétiques résidentielles au Canada : vue d'ensemble et possibilités.*

## **PAREMENTS EXTÉRIEURS ISOLANTS : PERFORMANCE IN SITU DES PEI : Projet de recherche de la SCHL.**

*Préparé par James B. Posey et John A. Vlooswyk. Préparé pour la Division de l'innovation en habitation, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1993.*

Vingt-cinq installations différentes, en service depuis 2 à 13 ans, ont été inspectées à Toronto, Calgary, Edmonton, Vancouver et les régions montagneuses de Colombie-Britannique et d'Alberta. Chacune des installations a été l'objet d'un examen visuel visant à détecter tout signe de dommages importants ou de détérioration. Dans 10 cas, des échantillons représentatifs de l'isolation et du revêtement ont été prélevés afin de déterminer, en laboratoire, le poids de la lame, l'épaisseur du revêtement et de la couche de fond, l'absorption d'eau, le type et la quantité de polymère de même que la nature du renfort.

Plus de la moitié des ouvrages étaient en bon ou en excellent état, bien qu'aucun ne fût tout à fait exempt de défaut. Environ 30 p. 100 des ouvrages présentaient des problèmes visibles suffisamment graves pour menacer leur tenue en service. Les dommages causés par des chocs et par l'infiltration d'humidité constituaient les causes les plus fréquentes de dommages entraînant la réparation ou le remplacement. Les problèmes observés sur le terrain étaient les suivants : défaillance des joints, fissuration, dommages causés par des chocs, application de couches excessivement minces, ramollissement, érosion du revêtement de finition, décollement, fixation médiocre, décoloration, gel durant la construction avant la cure, variation de la couleur, fissuration des zones soumises au mouvement des supports sous-jacents, réparations insatisfaisantes, présence d'algues et de mousse sur la surface, isolant saturé d'eau, dommages causés par de l'eau provenant de l'intérieur et séparation complète de l'ouvrage par rapport au bâtiment.

NOTE : Also available in English under the title: *Exterior Insulated Finish Systems EIFS: Field Performance: CMHC Research (Compendium of Research 1993).*

## Ongoing Projects/Projets en cours

### ASSESS THE IMPACT OF ENERGY EFFICIENCY IMPROVEMENT IN APPLIANCES ON DETACHED HOUSING

#### Objective:

Assess the impact of energy efficiency improvement in appliances on detached housing.

#### Division:

Research Division

#### Contractor:

Thermal Engineering  
15 Hanover Court  
Halifax, Nova Scotia  
B3M 3K7

#### CIDN:

1058 0200001

#### Central Registry:

6716-17-2

### EIFS RAINSCREEN PRODUCT SYSTEM

#### Objective:

Develop new methods of installing exterior insulation and finish systems (EIFS). The new product system will encompass interconnected aspects of the wall portion of the building envelope.

#### Division:

Research Division

#### Contractor:

STO Enterprises Inc.  
3495 Laird Road  
Units 16-18  
Mississauga, Ontario  
L5L 5S5

#### CIDN:

1268 0200001

1268 0201001

#### Central Registry:

6521-32/93

### ENERGY AUDITS OF TEN HIGH-RISE RESIDENTIAL BUILDINGS

#### Objective:

To determine the total energy gain and losses for 10 high-rise buildings across the country.

#### Division:

Housing Innovation Division

#### Contractor:

Scanada Consultants Limited  
436 MacLaren Street  
Ottawa, Ontario  
K2P 0M8

#### CIDN:

1291 0300001

#### Central Registry:

6765-21

### ENVIRONMENTAL IMPACT STUDY FOR HOUSING ENERGY EFFICIENCY TECHNOLOGY IMPACTS

#### Objective:

To assess the energy efficiency of improved thermal envelope performance and the impact of the envelope changes on the general environment and on indoor air quality.

#### Division:

Research Division  
Panel on Energy Research  
and Development

#### Contractor:

SAR Engineering Limited  
8884 - 15th Avenue  
Burnaby, British Columbia  
V3N 1Y3

#### CIDN:

0847 0200001

0847 0201001

#### Central Registry:

6716-17-1

### ENVIRONMENTAL IMPROVEMENT THROUGH URBAN ENERGY MANAGEMENT

#### Objective:

To produce an overview paper on environmental improvement through urban energy management in Canada.

#### Division:

International Relations  
Division

#### Contractor:

Torrie Smith Associates  
255 Centrum Boulevard  
Suite 302  
Orleans, Ontario  
K1E 3V8

#### CIDN:

0878 0901001

0878 0900004

#### Central Registry:

4305-4-8



### HEAT, AIR, AND MOISTURE TRANSFER IN HIGH-RISE BUILDING ENVELOPES

**Objective:**

To develop design guidelines for energy efficiency and durability of wall structures and roofing systems of residential high-rise buildings.

**Division:**

Research Division

**Contractor:**

National Research Council  
Building M-20  
Montreal Road  
Ottawa, Ontario  
K1A 0R6

**CIDN:**

0719 0200001  
0719 0201001

**Central Registry:**

6793-28

### INVESTIGATION OF EXTERIOR INSULATING AND FINISH SYSTEMS (EIFS)

**Objective:**

To carry out an investigation of exterior insulated and finish systems through controlled laboratory testing. The following will be tested: mesh tensile strength, moisture permeability, joint spacing, sealant bond, and joint design.

**Division:**

Housing Innovation Division

**Contractor:**

Warnock Hersey Professional  
Services Ltd.  
211 Schoolhouse Street  
Coquitlam, British Columbia  
V3K 4X9

**CIDN:**

1057 0300001

**Central Registry:**

6796-17

### OPTIMIZE PROGRAM

**Objective:**

To modify the Optimize Program so that it will be practical to use. Alterations to the program and preparation of a revised users guide, assistance in the provision of a hot-line advisory service to beta-test users.

**Division:**

Research Division

**Contractor:**

Tensegrity Systems Ltd.  
R.R.#1  
Metcalf, Ontario  
K0A 2P0

**CIDN:**

0865 0201001

**Central Registry:**

6700-10

**EFFECTIVENESS OF RESIDENTIAL DUCT CLEANING.**

*Prepared by Auger, Donnini & Nguyen Inc. Prepared for Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.*

This report presents the results of a study on the efficiency of residential duct cleaning. The study was performed in 33 houses and describes the results of measuring duct flows, fan amperage, dusts, and micro-organisms before and after duct cleaning.

The study concludes that there were no significant improvements in duct flows, fan amperage, duct airborne dust, house airborne dust, or supply duct dust levels. Only dust concentrations in the returns and concentrations in airborne micro-organisms have significantly improved after the duct cleaning. The reductions in airborne micro-organisms could not be attributed directly to the cleaning operations.

NOTE: Aussi disponible en français sous le titre : *Efficacité du nettoyage des conduits de ventilation.*

**L'EFFICACITÉ DU NETTOYAGE DES CONDUITS DE VENTILATION.**

*Préparé par Auger, Donnini & Nguyen inc. Préparé pour la Division de la recherche, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1994.*

Ce rapport présente les résultats d'une étude sur l'efficacité du nettoyage des conduits de ventilation résidentiels. L'étude, effectuée dans 33 maisons, rapporte les résultats des mesures des débits de ventilation, des poussières et des micro-organismes avant et après des travaux de nettoyage des conduits.

L'étude conclut qu'il n'y a pas eu d'améliorations significatives dans les débits et l'ampérage des systèmes de ventilation ou dans les concentrations de poussières dans l'air des conduits, ni pour les concentrations de poussières dans l'air des maisons ou les concentrations de poussières à la surface des conduits d'alimentation. Seulement les concentrations de poussières à la surface des conduits de retour et les micro-organismes dans l'air des maisons ont été réduites de façon significative après le nettoyage. Les réductions des concentrations de micro-organismes dans l'air n'ont pu être attribué directement au nettoyage.

NOTE : Also available in English under the title: *Effectiveness of Residential Duct Cleaning.*

# ENVIRONMENTAL POLLUTION AND CONTROL POLLUTION DE L'ENVIRONNEMENT ET SON CONTRÔLE

## Ongoing Projects/Projets en cours

### ADVICE ON THE DRAFTING OF EMISSION TEST STANDARDS

**Objective:**

Provide specific advice on improving three draft emission test standards.

**Division:**

Research Division

**Contractor:**

Stewart S. Fritts  
2415 Lazybrook  
Houston, Texas  
77008

**CIDN:**

0200002

**Central Registry:**

6719-3

### CONCENTRATIONS DE RADON-222 AU QUÉBEC

**Objet :**

Évaluer les concentrations moyennes annuelles de radon présentées dans un échantillon représentatif de résidences dans la province de Québec.

**Division :**

Division de la recherche  
Programme de subventions de recherche

**Contractant :**

Monsieur Benoît Lévesque  
Centre hospitalier de  
l'université Laval  
2050, boul. Saint-Cyrille ouest  
Ste-Foy (Québec)  
G1V 2K8

**NIC :**

0915 0200001

**Numéro de la gestion des  
documents :**

6585/L63

### DESIGN AND SPECIFICATIONS OF A CLEAN ADDITION TO AN EXISTING HOUSE

**Objective:**

To develop a generic design for a "clean addition" to an existing house to assist homeowners who want to build a clean environment for a hypersensitive member of the family; to identify appropriate building techniques and materials, and include alternative design options.

**Division:**

Research Division

**Contractor:**

Drerup-Armstrong Ltd.  
P.O. Box 130  
Carp, Ontario  
K0A 1L0

**CIDN:**

1212 1100001

**Central Registry:**

6717-16

### DEVELOPING TOOLS FOR MEASURING THE PERFORMANCE OF MOLD-TROUBLED HOUSING

**Objective:**

To develop tools for measuring the performance of mold-troubled housing.

**Division:**

Research Division

**Contractor:**

Appin Associates  
472 Academy Road  
2nd Floor  
Winnipeg, Manitoba  
R3N 0C7

**CIDN:**

1243 0200002

**Central Registry:**

6725-19-2

### DEVELOPMENT OF A MECHANICAL SYSTEM FOR A RESIDENTIAL CLEAN HOME

**Objective:**

To determine the best mechanical system or systems that will provide heating and ventilation for the "clean" addition to an existing house.

**Division:**

Research Division

**Contractor:**

Drerup-Armstrong Ltd.  
P.O. Box 130  
Carp, Ontario  
K0A 1L0

**CIDN:**

1213 1100001  
1213 1101001

**Central Registry:**

6717-16

## **THE DEVELOPMENT OF A TRAINING PROGRAM FOR INDOOR AIR QUALITY HOUSE EXPERTS**

### **Objective:**

Development of a training program for IAQ house experts; delivery of the pilot course; evaluation of the pilot course; exploration of future administrators of the program.

### **Division:**

Research Division

### **Contractor:**

Jools Development  
P.O. Box 69  
Quadeville, Ontario  
K0J 2G0

### **CIDN:**

1302 1100001

### **Central Registry:**

6717-20

## **EMISSION TESTING OF SELECTED BUILDING MATERIALS**

### **Objective:**

To conduct emission tests on groups of selected building materials (caulks, sealants, urethane foam, and pressed wood products).

### **Division:**

Research Division

### **Contractor:**

National Research Council  
Institute for Research in  
Construction  
Montreal Road  
Ottawa, Ontario  
K1A 0R6

### **CIDN:**

0964 1100002

### **Central Registry:**

6717-7

## **AN EVALUATION OF THE BARRHAVEN HOUSING PROJECT**

### **Objective:**

To undertake an evaluation of the Barrhaven housing project, a housing project in Ottawa, Ontario designed for the environmentally hypersensitive; to survey the occupants and landlord to assess whether their needs are being met and what advantages or limitations are encountered with this type of housing.

### **Division:**

Research Division

### **Contractor:**

Flett Consulting Groups Inc.  
130 Slater Street, Suite 750  
Ottawa, Ontario  
K1P 6E2

### **CIDN:**

1323 0200001  
1323 1100001

### **Central Registry:**

6717-19

## **AN EVALUATION OF THE SCREENING MEASUREMENT AS AN INDICATOR OF AVERAGE ANNUAL INDOOR RADON EXPOSURE**

### **Objective:**

Assess the short term screening measurement as an indicator of the average annual radon levels in homes.

### **Division:**

Research Division  
External Research Program

### **Contractor:**

Lafontaine Consulting  
Services  
106 Krug Street  
Kitchener, Ontario  
N2H 2X9

### **CIDN:**

1276 0200001

### **Central Registry:**

6585/L060-4



## ENVIRONMENTAL POLLUTION AND CONTROL POLLUTION DE L'ENVIRONNEMENT ET SON CONTRÔLE

### GUIDE TO MECHANICAL EQUIPMENT FOR HEALTHY INDOOR ENVIRONMENTS

**Objective:**

To develop a guide to mechanical equipment for healthy indoor environments, covering heating, cooling, ventilating and air purification equipment.

**Division:**

Research Division

**Contractor:**

Habitat Design & Consulting Ltd.  
1662 West - 75th Avenue  
Vancouver, British Columbia  
V6P 6G2

**CIDN:**

1031 1100001

**Central Registry:**

6717-13

### MECHANICAL SYSTEM FOR THE CMH4C HOUSE

**Objective:**

To supply a prototype mechanical system for a prefab house designed specifically for people who are environmentally hypersensitive.

**Division:**

Research Division

**Contractor:**

Geddes Enterprises  
45 Massey Lane  
Bramalea, Ontario  
L6S 2V8

**CIDN:**

0928 1103001

**Central Registry:**

6760-10

### A PLANNING MODEL FOR ESTIMATION OF PHOSPHORUS LOADING FROM ON-SITE SYSTEMS

**Objective:**

A systematic examination of the variables that may control phosphorus contributions to lakes. The model will recognize loadings leaving an on-site system, differences between failed systems and normal operation, geology, and soils.

**Division:**

Research Division  
External Research Program

**Contractor:**

Dr. Donald H. Waller  
Technical University of N.S.  
P.O. Box 1000  
Halifax, Nova Scotia  
B3J 2X4

**CIDN:**

0918 0200001

**Central Registry:**

6585/W29-2

### PREPARE AND PROVIDE SAMPLES OF BUILDING MATERIALS

**Objective:**

To prepare and provide the Corporation with samples of building materials to determine their impact on hypersensitive people.

**Division:**

Research Division

**Contractor:**

Eric Brackenbury  
101 Snelgrove Drive  
P.O. Box 253  
Carp, Ontario  
K0A 1L0

**CIDN:**

0964 1100003

**Central Registry:**

6717-29

### PRODUCTION OF AN EMISSIONS TESTING NEWSLETTER AND SUPPORT FOR THE TASK FORCE ON MATERIAL EMISSIONS STANDARDS

**Objective:**

To carry out production of an emissions testing newsletter and support for the task force on material emissions standards.

**Division:**

Research Division

**Contractor:**

Scanada Consultants Limited  
436 MacLaren Street  
Ottawa, Ontario  
K2G 0M8

**CIDN:**

1244 0200001

**Central Registry:**

6719-3

## **PROTOCOL FOR RESIDENTIAL INDOOR AIR QUALITY INVESTIGATIONS**

### **Objective:**

Develop a protocol or expert system to assist in the analysis of problems associated with unhealthy or hazardous residential buildings. The research will identify and investigate several buildings in the Ottawa area to test and improve the protocol.

### **Division:**

Research Division  
External Research Program

### **Contractor:**

George E. Vandrish  
Research Director  
Instruscience Limited  
484 Gladstone Avenue  
Ottawa, Ontario  
K1R 5N8

### **CIDN:**

0926 0200001

### **Central Registry:**

6585/V17-2

## **SAMPLING OF MOULDS IN HUMIDIFIERS OF FORCED AIR DUCTS**

### **Objective:**

To inspect forced air ducts being cleaned for the presence of mould in the region of humidifiers attached to the ducting system.

### **Division:**

Research Division

### **Contractor:**

Fred Ayoub  
Capital Air Care  
30 Armstrong Street  
Ottawa, Ontario  
K1Y 2V5

### **CIDN:**

0837 0200001

### **Central Registry:**

6725-19-1

## **STUDY OF THE HOUSING NEEDS OF THE ENVIRONMENTALLY HYPERSENSITIVE- SOCIO-ECONOMIC/ HEALTH FACTORS**

### **Objective:**

To conduct a survey, sampling various regions of the country, to document the socio-economic characteristics and the perceived housing-related needs of environmentally hypersensitive people who are intending to or who would like to make housing changes.

### **Division:**

Research Division

### **Contractor:**

Ekos Research Associates Inc.  
275 Sparks Street  
Suite 801  
Ottawa, Ontario  
K1R 7X9

### **CIDN:**

1257 1100001  
1257 1101001

### **Central Registry:**

6717-19

## **SURVEY OF ADVERSE HEALTH EFFECTS OF MOULD EXPOSURE**

### **Objective:**

To support the survey called "The Respiratory Health Effects of Indoor Moulds". This study will look at about 500 houses to identify how much biologically-active material there is in house air and dust. Frequency of cough will also be measured and compared to parental reports. In the final phase, the health of occupants will be assessed as well as the reasons for moisture problems in 100 of the houses.

### **Division:**

Research Division

### **Contractor:**

Health and Welfare Canada  
Bureau of Chemical Hazards  
Environmental Health Centre  
Room 130, Tunney's Pasture  
Ottawa, Ontario  
K1A 0L2

### **CIDN:**

0843 0201001

### **Central Registry:**

6725-19-2

## ENVIRONMENTAL POLLUTION AND CONTROL POLLUTION DE L'ENVIRONNEMENT ET SON CONTRÔLE

### A SURVEY OF ELECTROMAGNETIC FIELD LEVELS IN CANADIAN HOUSING

**Objective:**

To review the state-of-the-art in knowledge and housing research into EMF and prepare an interim report, to conduct a field survey of EMF levels in representative housing, and to prepare a report on the findings with recommendations for remedial measures.

**Division:**

Research Division

**Contractor:**

The Planetary Association for Clean Energy Inc.  
100 Bronson Avenue  
Suite 1001  
Ottawa, Ontario  
K1T 6G8

**CIDN:**

1051 0200001

**Central Registry:**

0427-15

### A SURVEY OF PROBLEM HOMES OF THE ENVIRONMENTALLY HYPERSENSITIVE

**Objective:**

This project will involve a survey of "sick" homes. These are homes that have presented health-related problems to hypersensitive occupants. A protocol will be applied in surveying the homes to identify the indoor air problems, their sources and solutions.

**Division:**

Research Division

**Contractor:**

Drerup Armstrong Ltd.  
P.O. Box 130  
Carp, Ontario  
K0A 1L0

**CIDN:**

1033 1100001

**Central Registry:**

6717-14

### TESTING OF BUILD GREEN MATERIALS AND CONVENTIONAL BUILDING MATERIALS

**Objective:**

To test recycled construction materials and conventional building materials for their off-gassing characteristics.

**Division:**

Housing Innovation Division

**Contractor:**

Ortech International  
2395 Speakman Drive  
Mississauga, Ontario  
L5K 1B3

**CIDN:**

0992 0300004

**Central Registry:**

6790-9

### USE OF BIOCIDES BY RESIDENTIAL DUCT CLEANERS

**Objective:**

To determine the type and application of biocides used.

**Division:**

Research Division

**Contractor:**

Figley Consulting Associates Ltd.  
350 Crean Crescent  
Saskatoon, Saskatchewan  
S7J 3X2

**CIDN:**

0994 0201001

**Central Registry:**

6725-21

#### **AIR REQUIREMENTS AND RELATED PARAMETERS FOR MASONRY HEATING SYSTEMS.**

*Prepared by Norbert Senf, Masonry Stove Builders. Prepared for the Research Division, Housing Technology Incentives Program, Canada Mortgage and Housing Corporation, Ottawa: CMHC, 1994.*

Masonry heaters are woodburning appliances that have the ability to store heat in a thermal mass. Typically, a 10 to 20 kg wood charge is burned rapidly with a liberal air supply, and a burn of 1 to 2 hours will yield a continuous heat output for 12 to 24 hours. Although based on designs that are hundreds of years old, the operating characteristics of masonry heaters make them particularly suitable for modern, energy-efficient housing. However, it is not clear how much air they will draw from the house during operation. This research was designed to answer that question.

Various aerodynamic parameters were measured on five different masonry heaters, with the aid of a specialized piece of testing apparatus, the CMHC duct test rig. Air consumption data was obtained under a variety of operating conditions. Air leakage was investigated in two heater systems, as were the tailout (diedown) characteristics. Finally, the air leakage on four types of masonry-heater firebox doors was tested.

The main conclusions of the tests are summarized below:

- Airflow rates of overfire air heaters were low (<30 L/s). Underfire air heaters had higher rates, up to 70 L/s.
- Air leakage rates for masonry heater doors tested ranged from 2 to 6 L/s at 25 Pa.
- Masonry heaters are not susceptible to spillage during tailout, as are some other types of woodburning appliances.
- Masonry heaters with overfire combustion air are suitable for operation in modern, airtight houses, with or without outside air supplies.



### Ongoing Projects/Projets en cours

#### COMBUSTION VENT CLEARANCES

**Objective:**

To examine changing requirements for clearances to combustibles using two (or more) examples.

**Division:**

Research Division

**Contractor:**

Scanada Consultants Limited  
446 Reynolds Street  
Oakville, Ontario  
L6J 3M4

**CIDN:**

1170 0200003

**Central Registry:**

6718-16

#### DEVELOP DESIGN GUIDE- LINES FOR HEATING AND VENTILATING SYSTEMS IN MULTI-UNIT RESIDENTIAL BUILDINGS

**Objective:**

To improve the installation and operating characteristics of the energy consuming systems in high-rise residential structures.

**Division:**

Research Division

**Contractor:**

Scanada Consultants Limited  
436 MacLaren Street  
Ottawa, Ontario  
K1A 0M8

**CIDN:**

1042 0200001

**Central Registry:**

6725-13-2

#### INVESTIGATION OF OPERATING CHARACTERISTICS OF HVAC SYSTEMS

**Objective:**

To improve understanding of the operating characteristics of high-rise residential HVAC systems leading to better heating and ventilating systems in high-rise residential structures.

**Division:**

Research Division

**Contractor:**

R.C. Tramblyn HVAC  
Consultant  
2 Sheppard Avenue East  
Suite 200  
North York, Ontario  
M2N 5Y7

**CIDN:**

0823 0200002

**Central Registry:**

6525-13

#### INVESTIGATION OF THE EFFECTS OF GLASS DOORS ON MASONRY FIREPLACE SAFETY

**Objective:**

To investigate the effects of glass doors on masonry fireplaces in reducing the amount of smoke spillage under depressurization.

**Division:**

Research Division

**Contractor:**

Virginia Polytechnic  
Institute and State University,  
301 Burrus Hall  
Office of Sponsored Programs  
Blacksburg, Virginia  
24061-0249

**CIDN:**

1045 0200001

**Central Registry:**

6718-14-1

# HIGH-RISE CONSTRUCTION CONSTRUCTION D'IMMEUBLES DE GRANDE HAUTEUR

## Ongoing Projects/Projets en cours

### INDUSTRY GUIDELINES ON THE COMPARTMENTALIZING OF THE PRESSURE EQUALIZED CAVITY

**Objective:**

To produce industry guidelines on the compartmentalizing of the pressure equalized cavity.

**Division:**

Housing Innovation Division

**Contractor:**

Boundary Layer Wind Tunnel Laboratory  
University of Western Ontario  
London, Ontario  
N6A 5B9

**CIDN:**

1123 0300002

**Central Registry:**

6793-21-3

### OPERATING COST PROFILES IN MULTI-UNIT RESIDENTIAL BUILDINGS

**Objective:**

To obtain operating cost profiles in Canadian multi-unit residential buildings.

**Division:**

Research Division

**Contractor:**

Real Estate Institute of Canada  
305-2200 Lakeshore Blvd. West  
Toronto, Ontario  
M8V 1A4

**CIDN:**

1024 0200001

**Central Registry:**

6600-35

### OPERATING COST PROFILES IN MULTI-UNIT RESIDENTIAL BUILDINGS

**Objective:**

To obtain operating cost profiles in Canadian multi-unit residential buildings.

**Division:**

Research Division

**Contractor:**

BOMA Canada  
#2012 - 20 Queen Street West  
Toronto, Ontario  
M5H 3R2

**CIDN:**

1024 0200002

**Central Registry:**

6600-35

## HOME AUTOMATION/HABITATIONS — AUTOMATISATION

### Ongoing Projects/Projets en cours

#### **A STUDY TO IDENTIFY COMMERCIALLY FEASIBLE RESIDENTIAL AUTOMATION PRODUCTS AND STRATEGIES**

##### **Objective:**

To organize two workshops in Ottawa to identify salient technical issues as a necessary background for subsequent interviews and to analyse this information in conjunction with subsequent workshops, interviews and focus groups to produce a report.

##### **Division:**

Research Division

##### **Contractor:**

Canadian Automated Building  
Association (CABA)  
1200 Montreal Road  
Building M-20  
Ottawa, Ontario  
K1A 0R6

##### **CIDN:**

1254 020001

##### **Central Registry:**

6702-4

**METHODS FOR EVALUATING HOMEOWNERSHIP.**

*Prepared by Andrejs Skaburskis and Marion Steele. Prepared for Program Evaluation Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.*

This report considers three methods for evaluating the relative advantages of tenure options. It identifies the main attributes that are associated with tenure options that may matter to policymakers and assesses the extent to which benefit/cost analysis, contingent valuation and behavioural research can assess the value of the attributes. It starts by listing the private and public benefits and costs attributed to homeownership and rental. Market failures and imperfections that may influence the consumer's choice are also identified, to help develop the rationale for public programs and to establish whether or not the federal government should enact policies that affect the decision to be a home owner or renter. The importance of the economic, cultural and physical environment is discussed to show the nature of the qualifications that may accompany any conclusion regarding tenure decisions.

The report summarizes the methods and links them to the evaluation of the main costs and benefits of homeownership. The report concludes with a proposal for a limited focus, low cost strategy for estimating the costs and benefits of homeownership. Under this proposal, the cost of homeownership as compared with private rental and with social housing would be estimated for a representative household. This would be done for various household types, such as a female single-parent, modest income household. This would constitute a base estimate which could then be combined with qualitative information to allow an informed response to the question, "Why should the government subsidize homeownership?"

**Ongoing Projects/Projets en cours**
**HOME OWNERSHIP  
PROGRAMS PARTICIPANT  
TRACKING PROJECT**
**Objective:**

A methodological report documenting the data collection methods and data elements required for surveying program participants.

**Division:**

Program Evaluation Division

**Contractor:**

SPR Associates Incorporated  
2378 Danforth Avenue  
2nd Floor  
Toronto, Ontario  
M4C 1K7

**CIDN:**

1112 0500001

**Central Registry:**

0429-2



## Ongoing Projects/Projets en cours

### THE HOUSING NEEDS OF HOMELESS CANADIANS

#### Objective:

To collect data from shelters, hostels, social agencies, private agencies, and public sources in the Toronto area. To interview homeless persons as well as those who work with the homeless.

#### Division:

Research Division  
External Research Program

#### Contractor:

Dr. Thomas Fleming  
Department of Sociology and  
Anthropology  
University of Windsor  
Windsor, Ontario  
N9B 3P4

#### CIDN:

0748 0200001

#### Central Registry:

6585/F36

# HOUSE CONSTRUCTION HABITATIONS — CONSTRUCTION

## Completed Projects/Rapports terminés

### THE RESIDENTIAL CONSTRUCTION WASTE MANAGEMENT CHALLENGE FOLLOW-UP SURVEY AND REPORT.

*Prepared by Kalin Associates Inc. Ottawa: Canada Mortgage and Housing Corporation, 1994.*

The purpose of this survey was to conduct a midterm follow-up on the impact of a series of workshops, offered by CMHC, entitled the Residential Construction Waste Management Challenge. Participants who accepted the "Challenge", thereby committing themselves to implement the 3R's (reduce, reuse and recycle) in their operations, were surveyed two years after attending. This report outlines the background of the "Challenge" workshops, presents the questionnaire used in the survey, summarizes some highlights of the results, presents the statistical and anecdotal data, and makes recommendations for future work in this area.

The data gathered by the survey indicates that recycling is neither as difficult nor as expensive in terms of time, labor or capital costs as many builders believe. In fact, when asked what effect waste diversion has had on their company's bottom line only 13% indicated there had been an escalation in cost, and those described it as "some" or "a little" increase or said "much can be billed back to the sub trades". Thirty-eight percent said it had little or no effect, and 17 percent said they enjoyed a cost savings. One respondent stated that besides saving money, their job sites had become safer.

## Ongoing Projects/Projets en cours

### DATA GATHERING ON LABOUR STANDARDS AND PROVINCIAL CONSTRUCTION PROCUREMENT POLICY

#### Objective:

A data gathering exercise resulting in the production of a report on the regulatory aspects of labour standards and procurement policies.

#### Division:

Strategic Planning and Policy  
Development Division

#### Contractor:

Patrick Warren  
54 High Street  
Waterloo, Ontario  
N2L 3X8

#### CIDN:

1303 0100001

#### Central Registry:

6860-21

### OPTIMISATION DE LA PERFORMANCE D'UN PROCÉDÉ DE RESUR- FACAGE DE MURS DE BETON OU DE MACONNERIE

#### Objet :

Étude visant à améliorer le  
procédé de fabrication et les  
performances générales d'un  
nouveau procédé de  
revêtement pour bâtiment.

#### Division :

Division de la recherche

#### Contractant :

Michel Fortin  
Fortex Inc.  
1415 rue St-Pierre Ouest  
apt. 5  
St-Hyacinthe (Québec)  
J2T 1P3

#### NIC :

1266 0200001

#### Numéro de la gestion des documents :

6521-30/93

### Completed Reports/Rapports terminés

#### **DOMICILE: CANADIAN HOMES TODAY (NHA 6761).**

*Prepared by Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.*

Canada Mortgage and Housing Corporation (CMHC), is committed to a vision of sustainable housing and community development. This magazine-style publication features articles which provide topical, consumer-oriented information on CMHC programs and research. The articles in the magazine touch on many key issues of concern - indoor air quality and control of pollutants, energy efficiency, water conservation, land management, community development and barrier-free design. These articles also offer practical information on homeownership, maintenance and renovation as well as mortgage financing.

NOTE: Aussi disponible en français sous le titre : *Domicile : se loger au Canada aujourd'hui* (LNH 6762).

#### **DOMICILE : SE LOGER AU CANADA AUJOURD'HUI (LNH 6762).**

*Préparé par la Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1994.*

La Société canadienne d'hypothèques et de logement (SCHL) s'est donnée une vision écologique du logement et du développement communautaire. Cette publication, de type magazine, contient de l'information spécialisée, destinée aux consommateurs, sur les programmes et la recherche de la SCHL. Les articles de ce magazine abordent de nombreux sujets de préoccupation comme la qualité de l'air intérieur, l'élimination des polluants, l'efficacité énergétique, l'économie de l'eau, la gestion foncière, le développement communautaire et la conception sans obstacle. Ces articles procurent aussi de l'information pratique sur l'achat, l'entretien et la rénovation d'une propriété ainsi que sur le financement hypothécaire.

NOTE : Also available in English under the title: *Domicile: Canadian Homes Today* (NHA 6761).

#### **HABITATION ET MILIEU DE VIE : L'ÉVOLUTION DU LOGEMENT AU CANADA, 1945 à 1986.**

*Préparé sous la direction de John R. Miron avec le concours de Larry S. Bourne ... et autres. Montréal : McGill-Queen's University Press; Ottawa : Société canadienne d'hypothèques et de logement, 1994.*

NOTE : Disponible à : University of Toronto Press, 5201 Dufferin Street, Downsview, Ontario, M3H 5Y8, 1-800-565-9523, PRIX : 45,00 \$ plus la TPS et des frais de manutention.

"Habitatation et milieu de vie" est le fruit d'un projet conçu par la Société canadienne d'hypothèques et de logement (SCHL) afin d'examiner les progrès accomplis en matière de logement au Canada. Dans le cadre d'une expérience inusitée, un consortium de vingt-deux auteurs comprenant des universitaires, des conseillers en logement et des particuliers de toutes les régions du pays, qui interviennent directement dans le processus visant à procurer des logements, a réalisé une étude qui reflète toute la richesse et la diversité des points de vue sur le logement au Canada.

Les collaborateurs identifient certains critères importants pour l'évaluation de la situation actuelle et future dans le domaine du logement, précisent les questions et priorités de la recherche en matière de logement et signalent certaines questions de politique qui se dessinent.

Document de référence essentiel sur le logement urbain et le développement des villes au Canada depuis la Seconde guerre mondiale, "Habitation et milieu de vie" sera apprécié des universitaires, des planificateurs, des professionnels et des étudiants qui s'intéressent aux questions de logement.

NOTE : Also available in English under the title: *House, Home, and Community: Progress in Housing Canadians, 1945-1986.*

**HOUSE, HOME, AND COMMUNITY: PROGRESS IN HOUSING CANADIANS, 1945-1986.**

*Edited by John R. Miron with Larry S. Bourne ... et al. Montreal: McGill-Queen's University Press; Ottawa: CMHC, 1993.*

NOTE: Available from: University of Toronto Press, 5201 Dufferin Street, Downsview, Ontario, M3H 5T8, 1-800-565-9523, Cost: \$55 plus GST, Shipping and Handling.

"House, Home and Community" is the end result of a project designed by Canada Mortgage and Housing Corporation (CMHC) to examine the progress made in terms of housing in Canada. As part of an unusual experiment, a consortium of twenty-two authors including academics, housing consultants and other specialists from every region of the country, all directly involved in the process of producing dwelling units, conducted a study which reflects the rich diversity of opinions on housing across Canada.

The contributors establish certain major criteria to assess current and future housing situations, zero in on housing research issues and priorities, and highlight certain policy-related questions which are looming on the horizon.

An essential reference document on urban housing and development in Canada since the Second World War, "House, Home, and Community" will be required reading for academics, urban planners, professionals and students interested in housing matters.

NOTE: Aussi disponible en français sous le titre : *Habitation et milieu de vie.*

**A PLACE TO CALL HOME: A PROFILE OF CANADA'S HOUSING SYSTEM (VE 0055).**

*Video cassette (28 mins.); VHS. Produced by Carleton Productions Inc. for Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.*

NOTE: The video is available on loan from CMHC or copies may be purchased at cost for \$9.95.

This video provides an overview of the Canadian housing system and the roles played by Canada Mortgage and Housing Corporation, the construction industry, non-profit associations, financial institutions, and federal, provincial and municipal governments. It also shows some recent initiatives in the field of sustainable housing, such as the healthy house and advanced houses.

NOTE: Bilingual - All tapes contain both the English and the French version. The English tapes feature the English version first, followed by the French version: *Un toit à soi : un profil du système de logement canadien.*



## HOUSING/LOGEMENT

### **UN TOIT À SOI : UN PROFIL DU SYSTÈME DE LOGEMENT CANADIEN (VF 0055).**

*Vidéocassette (28 min.); VHS. Produit par Carleton Productions Inc. pour la Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1994.*

NOTE : La vidéo est disponible à la SCHL à titre de prêt ou vous pouvez acheter des exemplaires au prix coûtant de 9,95 \$.

Cette vidéo donne une vue d'ensemble du système de logement canadien et des rôles que jouent la Société canadienne d'hypothèques et de logement, le secteur de la construction, les associations sans but lucratif, les établissements financiers et les organismes fédéraux, provinciaux et municipaux. Elle présente également des initiatives récentes dans le domaine du logement écologique telles que la maison saine et les maisons performantes.

NOTE : Bilingue - Chaque bande contient la version française et la version anglaise. Les bandes françaises présentent la version française d'abord suivie de la version anglaise : *A Place to Call Home: A Profile of Canada's Housing System.*

# **A.G.M.E. STUDY TOUR OF EUROPE - NOVEMBER, 1992**

## **Objet :**

Cette aide est accordée pour la production d'un rapport analytique fonde sur les observations des participants au voyage d'études en question.

## **Division :**

Relations internationales

## **Contractant :**

Assoc. Québécoise pour la maîtrise de l'énergie  
5, place Ville-Marie  
Bureau 903, 9-étage  
Montréal (Québec)  
H3B 2G2

## **VIC :**

1055 0900001

## **Numéro de la gestion des documents :**

0225-11

# **CANADIANS AND THEIR HOUSING EXPENDITURES, 1978-1992**

## **Objective:**

To update the temporal housing expenditure analyses completed in the 1990 report, "An Examination of Household Housing Expenditures, 1978-1986." The methodology applied to the 1978, 1982, and 1986 FAMEX micro-data bases is to be extended to the 1992 FAMEX micro-data base. The research will identify if major socio-economic shifts which occurred between 1978 and 1986 continued, and if core housing need grew even more concentrated amongst a group of disadvantaged renter households.

## **Division:**

Research Division

## **Contractor:**

Mr. Boriss Mazikins  
1025 Grenon Avenue, #1021  
Ottawa, Ontario  
K2B 8S5

## **CIDN:**

1221 0200001

## **Central Registry:**

6620-17-2

# **FUTURE ECONOMIC CONDITIONS AND THE HOUSING SECTOR**

## **Objective:**

To study the potential impacts of various scenarios of long term economic conditions, including the possibility of deflation, for the housing sector. The research will include a review of the general conditions associated with continued slow economic growth and deflationary contraction and pay special attention to the behaviour of households, the housing industry and financial institutions in such contexts. Through the development of scenarios of future economic conditions, the study will explore the implications for various components of the housing sector.

## **Division:**

Research Division  
Centre for Future Studies in Housing and Living  
Environments  
Experts in Residence Program

## **Contractor:**

Nicole Morgan  
377 Maple Lane  
Ottawa, Ontario  
K1M 1H7

## **CIDN:**

1015 0202001

## **Central Registry:**

6855-5

# **(HIFE) AND SURVEY OF SHELTER COST**

## **Objective:**

To conduct a survey of shelter cost as a supplement to the March 1991 Labour Force Survey.

## **Division:**

Statistical Services Division

## **Contractor:**

Statistics Canada  
Household Surveys Division  
5th Floor, Jean Talon Building  
Tunney's Pasture  
Ottawa, Ontario  
K1A 0T6

## **CIDN:**

0770 0401001

## **Central Registry:**

7050-4

### HIFE-BASED HOUSE PRICE INDEXES FOR CANADIAN CITIES AND MLS AVERAGE PRICES

#### Objective:

To provide an inexpensive price index showing house price change in Canadian CMA's starting in 1990; to provide evidence on the reliability of the MLS price averages as price indexes for Canadian CMA's.

#### Division:

Research Division  
External Research Program

#### Contractor:

Mrs. Marion Steele  
Associate Professor  
Department of Economics  
University of Guelph  
Guelph, Ontario  
N1G 2W1

#### CIDN:

1288 0200001

#### Central Registry:

6585-5037-4

### HOUSING PEOPLE IN MODERN INDUSTRIAL PARKS

#### Objective:

Will develop knowledge that may prove useful to planners, industrial development commissions, and housing providers.

#### Division:

Research Division  
External Research Program

#### Contractor:

Ms. Jill L. Grant  
Nova Scotia College of Art and Design  
5163 Duke Street  
Halifax, Nova Scotia  
B3J 3J6

#### CIDN:

1088 0200001

#### Central Registry:

6585/G064-1

### INTERNATIONAL YEAR OF THE FAMILY PUBLICATION

#### Objective:

Preparation of three housing profiles for an upcoming International Year of the Family publication.

#### Division:

Statistical Services Division

#### Contractor:

Statistics Canada  
D274 Jean Talon Building  
Tunney's Pasture  
Ottawa, Ontario  
K1A 0T6

#### CIDN:

1108 0400008

#### Central Registry:

7050-7

### MAXIMIZATION OF COMMUNITY BENEFITS DERIVED FROM HOUSING PROGRAMS IN REMOTE COMMUNITIES

#### Objective:

This project was designed to help remote communities realize full benefits of self-help housing programs (RNH demo projects) and, to explore opportunities for further application in community economic development of skills the residents developed through self-help housing programs. The community identified for study was Sheshatshiu, Labrador.

The project comprises three stages which are:

- A community survey of skills and skill levels, especially those gained in conjunction with RNH housing development, towards the development of a community skill inventory;
- The assessment of these skills relative to potential initiatives in community economic development; and
- The development of a "How To" manual which other communities could use to replicate the inventory and assessment process.

#### Division:

Strategic Planning and Policy Development Division

#### Contractor:

Terpstra and Associates Ltd.  
324 Hamilton River Road  
P.O. Box 10, Station "A"  
Goose Bay, Newfoundland  
A0P 1S0

#### CIDN:

0798 0100001

#### Central Registry:

6850-2

## **OPTIONS FOR ORGANIZING THE DEVELOPMENT AND IMPLEMENTATION OF HOUSING POLICY AND PROGRAMS IN CANADA**

### **Objective:**

To provide a comprehensive and responsible review of issues and options for organizing the development and implementation of housing policy and programs in Canada.

### **Division:**

Senior Vice-President's Office  
Policy, Research and  
Communications

### **Contractor:**

The Bayswater Consulting  
Group Inc.  
82 Bayswater Avenue  
Ottawa, Ontario  
K1Y 2E9

### **CIDN:**

1343 0600001

### **Central Registry:**

6850-3

## **PRESTON DEMONSTRATION**

### **Objective:**

To determine the viability of a self-built housing assistance option in an urban setting.

### **Division:**

Senior Vice-President's Office  
Policy, Research and  
Communications

### **Contractor:**

The Nova Scotia Department  
of Housing and Consumer  
Affairs  
Alderney Gate  
40 Alderney Drive, 5th Floor  
P.O. Box 815  
Dartmouth, Nova Scotia  
B2Y 3Z3

### **CIDN:**

1011 0600001

### **Central Registry:**

8390/2200-14

## **PROCEEDINGS OF THE HABITAT 94 CONFERENCE**

### **Objective:**

To support production of bilingual proceedings of the Habitat 94 conference - a joint conference between the Canadian Institute of Planners and the International Federation of Housing and Planning.

### **Division:**

Research Division

### **Contractor:**

Canadian Institute of Planners  
541 Sussex Drive  
2nd Floor  
Ottawa, Ontario  
K1N 6Z6

### **CIDN:**

1295 0200002

### **Central Registry:**

6855-2-3

## **ROLE OF HOUSING IN AN ENABLING SOCIETY**

### **Objective:**

Analyze and discuss the various roles housing policy can play in the context of the enabling society model. Propose various ways housing policies can be used to promote the philosophy of the enabling society while elaborating on CMHC's role in this regard.

### **Division:**

Strategic Planning and Policy  
Development Division

### **Contractor:**

Ekos Research Associates  
275 Sparks Street  
Suite 801  
Ottawa, Ontario  
K1R 7X9

### **CIDN:**

1006 0100001

### **Central Registry:**

6865-11

## **TRI-COUNTRY CONFERENCE 1994**

### **Objective:**

To support the production of 12 policy research papers addressing the broader influences and possible directions for housing policy in each of Canada, the U.S. and the U.K. and to ensure the effective exchange of these research findings among academics and practitioners from each of the three countries.

### **Division:**

Research Division

### **Contractor:**

Fannie Mae  
Office of Housing Policy  
Research  
3900 Wisconsin Avenue N.W.  
Washington, D.C.  
20016

### **CIDN:**

1206 0200001

### **Central Registry:**

6855-1



### LES INITIATIVES MUNICIPALES DANS LE DOMAINE DU LOGEMENT ABORDABLE.

*Préparé par Deborah Kraus pour l'Association canadienne d'habitation et de rénovation urbaine pour le compte de la Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1993.*

Le présent rapport expose des initiatives entreprises par des municipalités canadiennes dans le domaine du logement abordable. Son but est d'inciter les municipalités du pays à partager leurs idées, d'une part, et de fournir une description des nouvelles approches relatives au logement abordable, d'autre part.

Le rapport se divise en trois parties. La première constitue une introduction à l'étude où l'on examine la documentation et fait la synthèse des résultats obtenus. La deuxième contient 69 fiches d'information sur les initiatives entreprises par 34 municipalités canadiennes. Ces fiches sont réparties en douze catégories :

- itinérance;
- développement communautaire et économique;
- développement durable;
- densification;
- amélioration des collectivités, remise en état et conservation des logements existants;
- réglementation : administration et processus d'approbation;
- partenariat;
- terrains et financement de nouveaux ensembles;
- logement pour personnes âgées et groupes ayant des besoins spéciaux;
- santé et sécurité communautaires;
- accession à la propriété;
- services d'information et de référence sur le logement.

La troisième partie du rapport présente une bibliographie des récentes publications canadiennes et américaines traitant du rôle des municipalités en matière de logement abordable.

NOTE : Also available in English under the title: *Municipal Initiatives in Affordable Housing.*

## MUNICIPAL INITIATIVES IN AFFORDABLE HOUSING.

*Prepared by Deborah Kraus. Prepared for the Canadian Housing and Renewal Association and for Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1993.*

This study documents 69 affordable housing initiatives which were undertaken in 34 municipalities across Canada. It examines local efforts to provide shelter for the homeless, secure land and financing for affordable housing, support housing for persons with special needs, rehabilitate existing housing, promote community economic development and develop housing partnerships. It is hoped that some of the new ideas and approaches to affordable housing described in the report will serve as an inspiration to other municipalities.

The report is divided into three parts. The first part introduces the study, surveys the material and reviews the summary of findings. The second part contains 69 detailed fact sheets about municipal initiatives. The third part of the report contains an annotated bibliography of Canadian publications as well as a bibliography of recent literature from the United States.

NOTE: Aussi disponible en français sous le titre : *Les initiatives municipales dans le domaine du logement abordable.*

## Ongoing Projects/Projets en cours

### PROGRAM TO STIMULATE REGULATORY REFORM - A.C.T.: PHASE IV

#### Objective:

The development of twenty case studies, subject to sufficient ACT projects being completed.

#### Division:

Research Division

#### Contractor:

Federation of Canadian  
Municipalities  
24 Clarence Street  
Ottawa, Ontario  
K1N 5P3

#### CIDN:

0629 0202001

#### Central Registry:

6703-5-1

### SHELTER AFFORDABILITY AND HOUSING NEEDS OF CANADIAN FOOD BANK CLIENTS

#### Objective:

Will examine the relationship between food banks and housing, and produce a profile of the typical food bank client in Winnipeg, Manitoba, in regard to shelter needs and other socio-demographic variables.

#### Division:

Research Division  
External Research Program

#### Contractor:

Professor Jeff Sloan  
Manitoba Nursing Research  
Institute  
Faculty of Nursing  
University of Manitoba  
Winnipeg, Manitoba  
R3T 2N2

#### CIDN:

1099 0200001

#### Central Registry:

6585/S087

## Ongoing Projects/Projets en cours

### A COMPARATIVE STUDY OF IMMIGRANT HOUSING IN MONTREAL AND TORONTO

**Objective:**

To address the linkages between housing, neighbourhoods and social networks among visible minority immigrant groups living in metropolitan Montreal and Toronto.

**Division:**

Research Division

**Contractor:**

Brian K. Ray  
McGill University  
805 Sherbrooke Street West  
Montreal, Quebec  
H3A 2K6

**CIDN:**

1283 0200001

**Central Registry:**

6585-R069

### IMMIGRANT HOUSING CHOICES, 1991

**Objective:**

To update and extend the study of immigrant housing choices recently completed for CMHC. The study will describe differences between the housing choices of immigrants and non-immigrants in 1991 and compare findings to

those of the previous study. 1986 and 1991 census data will be used to trace changes over time in the behaviour of individual immigrant cohorts. Through focus groups and statistical analysis of 1991 census data, the research will attempt to identify factors underlying observed differences between immigrants and non-immigrants.

**Division:**

Research Division

**Contractor:**

Lapointe Consulting Inc.  
311 Markham Street  
Toronto, Ontario  
M6G 2K8

**CIDN:**

0854 0201001  
0854 0200002

**Central Registry:**

6620-24

### SURVEY OF ISSUES AFFECTING RACIAL AND ETHNIC MINORITIES IN THE HOUSING SECTOR

**Objective:**

The purpose of this research is to explore housing issues affecting racial and ethnic minorities and to identify issues, problems, and gaps in

housing services available through conducting a survey of government and non-government organizations serving the community.

The views of these organizations will be sought as to the activities that CMHC could potentially engage in that would complement those already being undertaken.

In addition, to promote possibilities for information exchange, information will be compiled for a directory of governmental and non-governmental agencies and organizations working in this area.

**Division:**

Strategic Planning and Policy  
Development Division

**Contractor:**

Ekos Research Associates Inc.  
275 Sparks Street  
Suite 801  
Ottawa, Ontario  
K1R 7X9

**CIDN:**

1067 0100001

**Central Registry:**

6865-10

### CANADIAN HOUSING PRODUCTS AND SERVICES FOR CHINA

**Objective:**

To identify potential opportunities for Canadian manufactured products and services for the Chinese housing market.

**Division:**

Housing Innovation Division

**Contractor:**

McGill University  
School of Architecture  
815 Sherbrooke Street West  
Montreal, Quebec  
H3A 2K6

**CIDN:**

1263 0300001

**Central Registry:**

4380-21

### EXPORTABLE HOUSE BUILDING AND REHABILITATION TECHNOLOGIES

**Objective:**

To undertake an analysis and develop a presentation of exportable Canadian housing technologies.

**Division:**

International Relations  
Division

**Contractor:**

Scanada Consultants Limited  
436 MacLaren Street  
Ottawa, Ontario  
K2P 0M8

**IDN:**

1293 0900006  
1294 0900001

**Central Registry:**

4380-21/22

### INVESTIGATION INTO COMMERCIAL OPPORTUNITIES FOR CANADA'S HOUSING SECTOR IN CENTRAL AND EASTERN EUROPE

**Objective:**

To provide a primer to describe the essential features of Central and Eastern European markets, identify housing needs, provide guidance on how to strategically approach Central and Eastern European markets, indicate Canadian and foreign resources that are potentially available to Canadian providers of housing technology.

**Division:**

International Relations  
Division

**Contractor:**

Canadian Urban Institute  
2nd Floor  
West Tower City Hall  
Toronto, Ontario  
M5H 2N1

**CIDN:**

0955 0900002

**Central Registry:**

4380-16

### SUPPORT FIVE REGIONAL WORKSHOPS ASSOCIATED WITH THE FEDERAL GOVERNMENT'S CONSULTATIONS ON HOUSING EXPORT STRATEGIES

**Objective:**

To support five workshops in Vancouver, Calgary, Toronto, Montreal and Halifax, that are part of the federal consultation on export strategies for Canada's housing industry.

**Division:**

International Relations  
Division

**Contractor:**

Worldbusiness  
5480 Canotek Road  
Suite 14  
Ottawa, Ontario  
K1J 9H6

**CIDN:**

1304 0900001

**Central Registry:**

4380-21

### SURVEY OF MAJOR HOUSING EXPORTS

**Objective:**

To carry out a telephone survey and analysis of one hundred of Canada's largest exporters of housing.

**Division:**

International Relations  
Division

**Contractor:**

Decima Research  
One Eglinton Avenue East  
Suite 700  
Toronto, Ontario  
M4P 3A1

**CIDN:**

1337 0900001

**Central Registry:**

4380-11-5



## Ongoing Projects/Projets en cours

### ALTERNATIVES FOR THE PLANNING AND DESIGN OF HOUSING IN ST. JOHN'S

**Objective:**

To explore alternatives for the planning and design of new low and medium density housing in St. John's, Newfoundland.

**Division:**

Research Division  
External Research Program

**Contractor:**

Robert Mellin, Architect  
89 Barnes Road  
St. John's, Newfoundland  
A1C 3X5

**CIDN:**

1095 0200001

**Central Registry:**

6585/M108

### 4D ENVIRONMENTAL SIMULATION TO EVALUATE DESIGN ALTERNATIVES FOR MEDIUM DENSITY HOUSING

**Objective:**

To generate and evaluate planning and design alternatives using ACV technology - Calgary.

**Division:**

Research Division  
External Research Program

**Contractor:**

Richard Perron  
Dept. of Landscape  
Architecture  
University of Manitoba  
Winnipeg, Manitoba  
R3T 2N2

**CIDN:**

1279 0200001

**Central Registry:**

6585/P060

### HABITATION ET FLEXIBILITÉ AU CANADA : BILAN 1991

**Objet :**

Construire une grille d'analyse permettant de dresser une typologie des solutions apportées par les architectes; et faire un rapport de synthèse proposant un bilan global des perspectives de résolution du problème de flexibilité dans une projet d'habitation.

**Division :**

Division de la recherche  
Programme de subventions de recherche

**Contractant :**

Annie Chelin  
5780, rue Hutchison  
Outremont (Québec)  
H2V 4B6

**NIC :**

0911 0200001

**Numéro de la gestion des documents :**

6565/C58

### IEA FUTURE BUILDINGS FORUM

**Objective:**

To write a report for the IEA Future Buildings forum.

**Division:**

Research Division

**Contractor:**

Facing the Future  
15003 - 56th Avenue  
Edmonton, Alberta  
T6H 5B2

**CIDN:**

1061 0200005

**Central Registry:**

6713-8

**PAPER FOR FUTURE  
BUILDINGS FORUM  
WORKSHOP "THE CONCEPT  
OF ANTICIPATION BUILDING  
DESIGN"**

**Objective:**

To prepare a paper in conjunction with P. Russell entitled "The Concept of Anticipation Building Design" to be presented at the Future Buildings Forum 25-28 June 1993.

**Division:**

Research Division

**Contractor:**

Mr. Graeme Consiglio  
59-1900 Marquis Avenue  
Gloucester, Ontario  
K1J 8J2

**CIDN:**

1061 0200002

**Central Registry:**

6715-8

**PASSIVE SOLAR HOUSE  
DESIGNS FOR CANADA**

**Objective:**

To identify relevant literature and design tools, analyze and interpret data in order to update existing monograph on passive solar house designs.

**Division:**

Research Division

**Contractor:**

Leslie Jones & Associates Ltd.  
319 Catherine Street  
Ottawa, Ontario  
K1R 5T4

**CIDN:**

1241 0200001

**Central Registry:**

6770-10

**PLANNING FOR TELEWORK  
AND HOME-BASED EMPLOY-  
MENT; A CANADIAN SURVEY  
ON INTEGRATING WORK  
INTO RESIDENTIAL  
ENVIRONMENT**

**Objective:**

Investigate the role of the home and neighbourhood for teleworkers and home-based workers; and the implications for the planning and design of homes and communities.

**Division:**

Research Division

**Contractor:**

University of British Columbia  
Research Services  
2194 Health Sciences Mall  
Room 323  
Vancouver, British Columbia  
V6T 1Z3

**CIDN:**

1010 0200001

**Central Registry:**

6855-2

**VILLE ST-LAURENT  
REVISITED: WARTIME  
HOUSING AND ARCHITEC-  
TURAL CHANGE, 1942-92**

**Objective:**

To study a solution offered by the wartime housing effort and to test its lessons for today's housing problems.

**Division:**

Research Division  
External Research Program

**Contractor:**

Dr. Annmarie Adams  
School of Architecture  
McGill University  
815 Sherbrooke Street West  
Montreal, Quebec  
H3A 2K6

**CIDN:**

1083 0200001

**Central Registry:**

6585/A042

## HOUSING FORECASTING AND DEMAND PRÉVISION ET DEMANDE DE LOGEMENTS

### Ongoing Projects/Projets en cours

#### **CHILD NOMADS: SHARED PARENTING AND DUAL RESIDENCE**

##### **Objective:**

A literature review, an empirical study and an analysis of the findings and assessment of the overall magnitude and possible longer term implications of joint custody agreements both in terms of potential housing demand and the spatial and design considerations.

##### **Division:**

Research Division  
Centre for Future Studies in  
Housing and Living  
Environments  
Experts in Residence Program

##### **Contractor:**

Mr. Martin Wexler  
45, rue Chesterfield  
Westmount, Quebec  
H3Y 2M4

##### **CIDN:**

1015 0201001

##### **Central Registry:**

6855-5

#### **HOUSING DEMAND AND CONSUMER PREFERENCES IN THE 1990's**

##### **Objective:**

To identify in more detail  
each target group's goals and  
regional housing preferences  
for the 1990's.

##### **Division:**

Market Analysis Centre

##### **Contractor:**

Environics Research Group  
Limited  
45 Charles Street East  
Toronto, Ontario  
M4Y 1S2

##### **CIDN:**

0995 0100001

##### **Central Registry:**

6905-10

### ALTERNATIVE CONSTANT-QUALITY PRICE INDEXES FOR MODEST DWELLING, KITCHENER-WATERLOO

**Objective:**

Investigate house price change, in order to provide evidence on whether or not a variant of the standard hedonic method or the standard repeat sales method would provide a relatively inexpensive method for the estimation of valid, constant quality, house price indexes.

**Division:**

Research Division  
External Research Program

**Contractor:**

Mr. Richard E. Goy  
53 Speedvale Avenue West  
Guelph, Ontario  
N1H 1J6

**CIDN:**

1087 0200001

**Central Registry:**

6585/G069

### DEMOGRAPHIC CHANGE IN THE HOUSING MARKET IN CANADA

**Objective:**

To deepen our understanding of demographic effects on housing markets and to identify future policy problems that might emerge in the ownership and rental markets.

**Division:**

Research Division  
External Research Program

**Contractor:**

Mr. Arthur Hosios  
University of Toronto  
Institute for Policy Analysis  
707 - 140 Saint George Street  
Toronto, Ontario  
M5S 2T4

**CIDN:**

1091 0200001

**Central Registry:**

6585/H055-1

### MATCHING BUYERS AND SELLERS IN THE RESALE HOUSING MARKET

**Objective:**

Matching buyers and sellers in the resale housing market.

**Division:**

Research Division  
External Research Program

**Contractor:**

Mr. Christopher T. Ragan  
Department of Economics  
McGill University  
855 Sherbrooke Street West  
Montreal, Quebec  
H3A 2T7

**CIDN:**

1098 0200001

**Central Registry:**

6585/R065



### Ongoing Projects/Projets en cours

#### **INFRASTRUCTURE COSTS ASSOCIATED WITH CONVENTIONAL AND ALTERNATIVE DEVELOP- MENT PATTERNS**

**Objective:**

To carry out the study entitled: "Infrastructure Costs Associated with Conventional and Alternative Development Patterns".

**Division:**

Research Division

**Contractor:**

Essiambre Phillips Desjardins  
1900 City Park Drive  
Suite 206  
Gloucester, Ontario  
K1J 1A3

**CIDN:**

1193 0200001

**Central Registry:**

6665-21

#### **INNOVATIVE INFRASTRUCTURE: MUNICIPAL EXPERIENCES**

**Objective:**

To present a very brief historical outline of the evolution of the design of the dominant Canadian municipal infrastructure systems and materials, to provide an examination of the technical causes for a range of failures in some of these systems; to place into context an identification of technologies to repair these failing systems; and to carry out a survey to identify durable repair technologies and to provide case studies on a number of examples which have been locally acceptable and affordable.

**Division:**

Research Division

**Contractor:**

REIC Ltd.  
15010 Yonge Street  
Aurora, Ontario  
L4G 1M6

**CIDN:**

1219 0200001

**Central Registry:**

6715-8

## Ongoing Projects/Projets en cours

### DEVELOPMENT OF COMMERCIALLY VIABLE CONCEPTS AND A DESIGN FOR A RESIDENTIAL FRAMING SYSTEM FOR A MONOCOQUE HOUSE

#### Objective:

The development of commercially viable engineered structural concepts and a design for a monocoque framing system for residential structures which can be adopted by home builders for the construction of houses on unstable soils; monitoring of the demonstration of the system in a house construction project and a report of the results of the work for CMHC.

#### Division:

Housing Innovation Division

#### Contractor:

Gower, Yeung & Associates  
Ltd.  
615 Eighth Street  
Suite 201  
New Westminster  
British Columbia  
V3M 3S3

#### CIDN:

0657 0300001

#### Central Registry:

6796-4

### MONOCOQUE CAVITY RIGID PANEL FOR WALL AND ROOF CONSTRUCTION

#### Objective:

To finalize the design of monocoque wall and roof panels and the locking joint assemblies for these panels, and produce prototype wall and roof panels for testing.

#### Division:

Research Division

#### Contractor:

Ray-Co-Tech Inc.  
30, rue Des Frenes  
Bromont (Québec)  
J0E 1L0

#### CIDN:

1270 0200001

#### Central Registry:

6521-27/93

## Ongoing Projects/Projets en cours

### **TITLE INSURANCE IN CANADA**

#### **Objective:**

Compare the various land title insurance systems and examine the effectiveness of such insurance. Prepare a questionnaire to direct the survey and contact provincial law reform commissions and provincial real property sections of the Canadian Bar Association.

#### **Division:**

Research Division  
External Research Program

#### **Contractor:**

D. Shuler  
Shuler & Dickinson  
Barristers & Solicitors  
Box 1600  
Banff, Alberta  
T0L 0C0

#### **CIDN:**

0090 0200001

#### **Central Registry:**

6585/S58

#### **LEAD-BASED PAINT REMOVAL WITH ECOSTRIP VR-2 SYSTEM.**

*Prepared by Mark W. Janusz. Prepared for Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994. (Housing Technology Incentives Program).*

Lead-based paint found in a large number of homes, institutions and other architectural structures, can pose a serious health risk to individuals if proper precautions are not taken when disturbing the painted surfaces. This report offers a brief overview of the most commonly used methods of lead-paint abatement/removal. It describes the development of a dry stripping process using the Ecostrip VR-2 system. It explains the application of this system in the restoration of antique furniture as well as subsequent engineering developments aimed at providing a residential lead-paint removal system which would provide an efficient and environmentally safe alternative.

The research project involved testing the performance of low-pressure media blasting and airborne emissions. The report describes the results of the final test, conducted in a 150-year-old farmhouse in Merrickville, where the millwork was successfully stripped down to the bare wood with the use of the Ecostrip System, with no significant increase in airborne lead or leaded-dust levels.



## Ongoing Projects/Projets en cours

### ASSESSMENT OF THE CAPACITY TO USE STOCHASTIC MODEL IN BUILDING LIFE-CYCLE COSTING

#### Objective:

The study is an evaluation of how well easily collected, financial data reported on audited statements and supporting documentation about housing that is targeted towards low and moderate income households can be used in conjunction with well known probabilistic models to estimate long term maintenance, repair and replacement costs.

#### Division:

Research Division  
External Research Program

#### Contractor:

Aron Spector  
Ark Research Associates  
165 Hinton Avenue North  
Ottawa, Ontario  
K1Y 0Z9

#### CIDN:

1100 0200001

#### Central Registry:

6585/S008-7

### PERFORM A CRITICAL REVIEW AND MARKET NEEDS EVALUATION FOR THE CMHC LIFE-CYCLE COSTING SOFTWARE

#### Objective:

Perform a technical and market analysis of the life-cycle costing software; conduct a review of characteristics and industry requirements for a modeling and information system for low-rise housing.

#### Division:

Research Division

#### Contractor:

Richard Kadulski  
Architect  
#208 - 1280 Seymour Street  
Vancouver, British Columbia  
V6B 3N9

#### CIDN:

1064 0200002

#### Central Registry:

0240/N1-5

#### A LITERATURE AND CODE REVIEW ON DAYLIGHTING IN HOUSING

**Objective:**

To review the literature and the National Building Code of Canada on the treatment of daylighting as a factor in planning and design of housing in northern latitude countries.

**Division:**

Research Division

**Contractor:**

James Love Consultants  
1737 2nd Avenue N.W.  
Calgary, Alberta  
T2N 0G3

**CIDN:**

1214 1100003

**Central Registry:**

6717-18

#### REVIEW OF LIGHTING AND HUMAN HEALTH

**Objective:**

To review the biological effects of light (from the ultraviolet to the infrared) with emphasis on the effects (biochemical, physiological, etc.) on human health.

**Division:**

Research Division

**Contractor:**

Dr. Benjamin Rusak &  
Associates  
1976 Beech Street  
Halifax, Nova Scotia  
B3H 4B8

**CIDN:**

1214 1100001

**Central Registry:**

6717-18

## MANUFACTURED HOUSING/HABITATIONS USINÉES

### Ongoing Projects/Projets en cours

#### **A STRUCTURAL ANALYSIS OF THE CANADIAN AND INTERNATIONAL MANUFACTURED HOUSING INDUSTRY**

##### **Objective:**

To enhance the international competitiveness of the Canadian Manufactured Housing Industry.

##### **Division:**

Research Division

##### **Contractor:**

Canadian Manufactured  
Housing Association  
150 Laurier Avenue West  
Suite 200  
Ottawa, Ontario  
K1P 5J4

##### **CIDN:**

1290 0200001

##### **Central Registry:**

0190-78-10

#### ÉTUDE DES PERFORMANCES DU REVÊTEMENT DE PLÂTRE.

*Préparé par Gustav Handegord, Handegord and Company Inc. Ottawa : Société canadienne d'hypothèques et de logement, 1993. (Programme de subventions de recherche).*

Le logiciel EMPTIED a servi à évaluer la résistance à l'humidité de murs types à parement extérieur isolant ou placage de brique (PEI) sous quinze différentes conditions climatiques au Canada. Les conditions intérieures étaient présumées être celles d'un appartement d'une chambre, habité par deux personnes, et ventilé par l'air extérieur au rythme constant de 0,3 renouvellement d'air à l'heure.

D'après les résultats, si l'espace entourant les poteaux comporte une isolation thermique dans l'un ou l'autre de ces types de murs, la température du plâtre tombera vraisemblablement sous le point de rosée intérieur à tous les endroits, à moins d'une isolation surabondante à l'extérieur. En l'absence d'isolation dans l'espace des poteaux, cependant, une quantité moyenne d'isolation extérieure devrait suffire pour maintenir la température du revêtement au-dessus du point de rosée ambiant. Pour les murs dont l'ossature est isolée, avec une isolation extérieure de 25 mm et 50 mm, nous avons cerné, pour chaque ville, les aires de fuite limitant la teneur en humidité du revêtement de plâtre au-dessous du niveau propice à la moisissure et au mildiou, de même qu'aboutissant à la saturation et une éventuelle détérioration structurale.

Une étude expérimentale où des revêtements de plâtre ont été exposés à différentes conditions de condensation sous un gradient de température a permis d'établir les conditions limitant la teneur en humidité pour ces évaluations, quoiqu'elle ait aussi remis en question l'idée reçue qu'une condensation se produit sur toutes les surfaces dont la température est au-dessous de celle du point de rosée de l'air avec lequel elles entrent en contact. Conjuguées aux analyses et mesures de certains autres chercheurs, les observations qui ont été faites laissent croire que de la condensation se forme sur les surfaces non absorbantes qui sont sous la température du point de rosée, mais pas nécessairement sur les surfaces absorbantes, du moins jusqu'à ce qu'elles atteignent une humidité spécifique équivalente à une humidité relative de 100 %. Elles ouvrent aussi la voie à toutes sortes de possibilités pour la protection du revêtement de plâtre contre la condensation, ainsi que pour la mise au point d'éléments de conception améliorés pour les enveloppes de bâtiment.

NOTE : Also available in English under the title: *Investigation of the Performance of Gypsum Sheathing.*

#### ÉVALUATION DE LA PRÉCISION DES HYGROMÈTRES.

*Préparé par Buchan, Lawton, Parent Ltd. Préparé pour la Division de la recherche, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1994.*

Les objectifs de la présente recherche consistent à déterminer l'exactitude et la durabilité des hygromètres à la portée des propriétaires-occupants et à mettre au point une méthode d'étalonnage simple. Six sortes d'hygromètres destinés au marché de la consommation ont fait l'objet de tests dans une chambre à atmosphère contrôlée. La moitié des appareils testés ont affiché d'importantes erreurs d'étalonnage zéro. Les hygromètres à résistance ont réagi peu ou pas du tout aux taux d'humidité inférieure. L'exposition prolongée au gel et à la condensation n'a pas exercé d'effet permanent sur la performance des hygromètres



testés lors de cette étude. L'exposition au chlore a agi temporairement sur l'un des hygromètres à résistance. Les résultats indiquent qu'un hygromètre à résistance ou à dilatation bien étalonné conviendra vraisemblablement aux besoins des propriétaires-occupants.

Nous avons tenté d'utiliser les données météorologiques obtenues d'aéroports pour étalonner les hygromètres, surtout dans les conditions suivantes :

- température extérieure d'environ 20°C
- journée ensoleillée, ciel clair, pression atmosphérique élevée
- forts vents
- relevés effectués au milieu de l'après-midi
- hygromètre protégé de l'ensoleillement direct

Les résultats des essais d'étalonnage sont prometteurs, mais non concluants.

NOTE : Also available in English under the title: *Investigation of Moisture Monitoring Devices*.

## **INVESTIGATION OF MOISTURE MONITORING DEVICES.**

*Prepared by Buchan, Lawton, Parent Ltd. Prepared for Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994, 2 vol.*

Volume 1. Main Report

Volume 2. Appendices

The objectives of this project were to determine the accuracy and durability of hygrometers available to homeowners and to develop a simple hygrometer calibration procedure. A selection of six types of consumer level hygrometers were tested in an environmental chamber. Half the hygrometers tested showed significant, zero calibration errors. The resistive hygrometers responded poorly, or not at all, in the low humidity range. Prolonged exposure to freezing and condensing environments had no permanent effect on the performance of the hygrometers. However, exposure to chlorine temporarily affected one of the resistive hygrometers. The results show that a resistive hygrometer, or a properly calibrated strain hygrometer, will likely be suitable for use by homeowners.

Preliminary tests show that homeowners could calibrate their hygrometers roughly by measuring the outdoor humidity and comparing the results to readings taken by Environment Canada at airports. When calibrating hygrometers with weather data, the following conditions should be met:

- Outside temperature approximately 20°C;
- High pressure, clear, sunny days;
- Windy conditions;
- Readings taken in mid-afternoon; and
- Hygrometer shaded from direct sunlight.

NOTE: Aussi disponible en français sous le titre : *Évaluation de la précision des hygromètres*.

## MOISTURE PROBLEMS/HUMIDITÉ

### INVESTIGATION OF THE PERFORMANCE OF GYPSUM SHEATHING.

*Prepared by Gustav Handegord, Handegord and Company Inc. Ottawa: Canada Mortgage and Housing Corporation, 1993. (External Research Program)*

The computer program EMPTIED was used to assess the moisture performance of representative brick veneer and exterior insulation finish system (EIFS) walls under the climate conditions for fifteen locations in Canada. The indoor conditions were assumed to be those expected in a one-bedroom apartment, occupied by two persons, which was ventilated with outdoor air at a constant rate of 0.3 air changes per hour.

The results obtained suggest that if insulation is installed in the stud space of either of these wall types, the temperature of the gypsum sheathing is likely to fall below the indoor dewpoint temperature in all locations, unless an excessive thickness of exterior insulation is applied. If the stud space is left uninsulated, however, only modest thicknesses of exterior insulation should be able to maintain the sheathing temperature above the room dewpoint temperature. For walls with insulation in the stud space and 25 mm and 50 mm of exterior insulation, the limiting leakage areas that would restrict the moisture content of the gypsum sheathing to below that conducive to mold and mildew growth, and to that for saturation and possible structural deterioration were determined for each city.

An experimental study, in which gypsum sheathing was exposed to condensation conditions under a temperature gradient, helped to establish the limiting moisture content conditions for these assessments, but raised questions regarding the conventional assumption that condensation will occur on all surfaces which fall below the dewpoint temperature of the air in contact with them. When considered with the analyses and measurements of some other researchers, the observations suggest that condensation will form on non-absorptive surfaces that are below the dewpoint temperature, but may not occur on absorptive materials until they reach a moisture content in equilibrium with 100% relative humidity. These observations further suggest a number of possibilities for the protection of gypsum sheathing from condensation and for the development of improved building envelope design details.

NOTE: Aussi disponible en français sous le titre : *Étude des performances du revêtement de plâtre.*

## MOISTURE PROBLEMS/HUMIDITÉ

### Ongoing Projects/Projets en cours

#### **COST/BENEFIT STUDY OF DRY LUMBER**

##### **Objective:**

To carry out a cost/benefit study of dry lumber in Atlantic Canada.

##### **Division:**

Housing Innovation Division

##### **Contractor:**

ADI Limited  
Suite 407, 1133 Regent Street  
Box 44, Station "A"  
Fredericton, New Brunswick  
E3B 4Y2

##### **CIDN:**

1209 0300001

##### **Central Registry:**

6506-19

#### **ENHANCE THE EMPTIED COMPUTER PROGRAM AND DEVELOP A MANUAL**

##### **Objective:**

Development of a tutorial manual will develop an understanding of the process involved, the method of calculation, and will provide illustrative examples of the application of the EMPTIED program in predicting moisture accumulation in walls and condensation on windows. Guidelines for considering the effects of solar radiation and frost action will be included.

##### **Division:**

Housing Innovation Division

##### **Contractor:**

Handegord and Company  
Limited  
185 Strathcona Road S.W.  
Calgary, Alberta  
T3H 1X9

##### **CIDN:**

1107 0300001

1107 0301001

##### **Central Registry:**

6793-24-4

#### **MOISTURE PIN PLACEMENT WORK**

##### **Objective:**

To install moisture pins in the roof sheathing of the attic of building "A" of the Corporation's National Office building complex.

##### **Division:**

Research Division

##### **Contractor:**

Scanada Consultants Limited  
436 MacLaren Street  
Ottawa, Ontario  
K2P 0M8

##### **CIDN:**

0947 0200001

##### **Central Registry:**

6730-12

#### **COMMISSIONING AND TESTING THE PRESSURE EQUALIZED WALL**

##### **Objective:**

To carry out work aimed at producing guidelines for the testing and commissioning of pressure equalized rainscreen walls.

##### **Division:**

Housing Innovation Division

##### **Contractor:**

Quirouette Building Envelope  
Specialists  
18 Crispin Private  
Ottawa, Ontario  
K1K 2T8

##### **CIDN:**

1123 0304002

1123 0300004

##### **Central Registry:**

6793-21-5

#### **WIND TUNNEL EXPERIMENTS SIMULATING WIND DRIVEN RAIN**

##### **Objective:**

Study the density of rain impact for three common building shapes and with three architectural features that are designed to minimize rain impact on the buildings.

##### **Division:**

Housing Innovation Division

##### **Contractor:**

The Boundary Layer Wind  
Tunnel Laboratory  
University of Western Ontario  
Room 271  
Stevenson Lawson Building  
London, Ontario  
N6A 5B8

##### **CIDN:**

1123 0304001

1123 0300001

##### **Central Registry:**

6793-21-3

# MORTGAGES AND HOUSING FINANCE HYPOTHÈQUES ET LOGEMENT — FINANCES

## Ongoing Projects/Projets en cours

### EVALUATION OF THE HATTEL LOAN INSURANCE PROGRAM (CLIP)

**Objective:**

Data collection phase of the surveys for the evaluation of the CLIP program and to carry out a study of lender administrative costs.

**Division:**

Program Evaluation Division

**Contractor:**

Ekos Research Associates  
275 Sparks Street  
Suite 801  
Ottawa, Ontario  
K1R 7X9

**CIDN:**

1174 0500001

**Central Registry:**

0436-8

### FEASIBILITY STUDY ON A SURVEY OF LENDERS

**Objective:**

To determine the feasibility of developing a comprehensive survey of lenders with regard to their mortgage portfolio.

**Division:**

Market Analysis Centre

**Contractor:**

Mary McDonough Research  
and Associates  
151 Yonge Street, Suite 1210  
P.O. Box 7  
Toronto, Ontario  
M5C 2W7

**CIDN:**

1350 1000001

**Central Registry:**

6905-19

### FUNDING FOR REVERSE MORTGAGES - ASSESSMENT OF CONCEPTUAL FUNDING ALTERNATIVES

**Objective:**

A report identifying and analyzing how reverse mortgages could be funded in a viable, credible manner from both a number of individual funding sources as well as across the range of such funding sources.

**Division:**

Strategic Planning and Policy  
Development Division

**Contractor:**

Ernst & Young Management  
Consultants  
Ernst & Young Tower  
Toronto-Dominion Centre  
P.O. Box 251  
Toronto, Ontario  
M5K 1J7

**CIDN:**

0999 0100001

**Central Registry:**

6625-27



# MUNICIPAL GOVERNMENT AND FINANCE ADMINISTRATION MUNICIPAL ET FINANCES

## Ongoing Projects/Projets en cours

### **HANDBOOK ON MUNICIPAL ENVIRONMENTAL PRICING**

#### **Objective:**

To produce the ICLEI handbook on municipal environmental pricing which will provide a blueprint for reforming municipal economic instruments.

#### **Division:**

International Relations  
Division

#### **Contractor:**

International Council for  
Local Environmental  
Initiatives  
City Hall, East Tower  
8th Floor  
Toronto, Ontario  
M5H 2N2

#### **CIDN:**

1252 0900001

#### **Central Registry:**

4350-15

### ABORIGINAL HOUSING NEEDS

#### Objective:

To provide a profile of the housing characteristics and needs of aboriginal peoples using data from the 1991 Census and post-censal Aboriginal Peoples Survey (APS).

#### Division:

Research Division

#### Contractor:

ARK Research Associates  
165 Hinton Avenue North  
Ottawa, Ontario  
K1Y 0Z9

#### CIDN:

1045 0201002

#### Central Registry:

6620-2

### ANALYSIS OF MIGRATION AND RESIDENTIAL MOBILITY PATTERNS AMONG CANADA'S ABORIGINAL POPULATION

#### Objective:

To undertake a study examining both the migration and mobility patterns among aboriginal groups. The study will explore the relationship with the urbanization and housing conditions of the aboriginal population.

#### Division:

Research Division

#### Contractor:

Royal Commission on  
Aboriginal Peoples  
427 Laurier Avenue, 6th Floor  
P.O. Box 1993, Station "B"  
Ottawa, Ontario  
K1P 1B2

#### CIDN:

1171 0200001

#### Central Registry:

6855-26

### APPROACHES TO HOUSING FOR THE MÉTIS PEOPLE

#### Objective:

To conduct research on native housing issues relevant to Métis people and prepare a report exploring options for approaches to meet the housing needs of Métis people.

#### Division:

Strategic Planning and Policy  
Development Division

#### Contractor:

Métis National Council  
50 O'Connor Street  
Suite 310  
Ottawa, Ontario  
K1P 6L2

#### CIDN:

1189 0100001

#### Central Registry:

4044-2

### ASSESSMENT OF REQUIREMENTS TO ESTABLISH FIRST NATIONS BUILDING INSPECTION UNITS

#### Objective:

Determine the financial and human resources needed to establish a system of First Nations housing inspection units across Canada, and identify the legal, regulatory, or other barriers that must be addressed if the system is to be put in place.

#### Division:

Strategic Planning and Policy  
Development Division

#### Contractor:

Assembly of First Nations  
Housing Programs  
55 Murray Street, 5th Floor  
Ottawa, Ontario  
K1N 5M3

#### CIDN:

1159 0100001

#### Central Registry:

4044-2

### THE HOUSING CRISIS IN CANADA'S INUIT COMMUNITIES

#### Objective:

To conduct research on housing issues relevant to Inuit people.

#### Division:

Strategic Planning and Policy  
Development Division

#### Contractor:

Inuit Tapirisat of Canada  
Suite 510  
170 Laurier Avenue West  
Ottawa, Ontario  
K1P 5V5

#### CIDN:

1196 0100001

#### Central Registry:

4044-2

### HOUSING FOR THE MÉTIS PEOPLE: A NATIONAL STUDY ON THE STATE OF MÉTIS HOUSING

**Objective:**

Examine the state of housing for Métis people in the Métis homeland.

**Division:**

Strategic Planning and Policy Development Division

**Contractor:**

Métis National Council  
558 Whitewood Crescent  
Saskatoon, Saskatchewan  
S7J 4L1

**CIDN:**

1158 0100001

**Central Registry:**

4044-2

### INCREASING SELF-SUFFICIENCY: NEW FINANCING AND INVESTMENT OPPORTUNITIES FOR URBAN AND RURAL NATIVE HOUSING AUTHORITIES

**Objective:**

Conduct research on options to increase the self-sufficiency of native housing authorities through new financing and investment opportunities.

**Division:**

Strategic Planning and Policy Development Division

**Contractor:**

Native Council of Canada  
384 Bank Street, 2nd Floor  
Ottawa, Ontario  
K2P 1V4

**CIDN:**

1203 0100001

**Central Registry:**

4044-2

### INUIT WOMEN AND HOUSING ISSUES

**Objective:**

To conduct research on housing issues relevant to Inuit women. The results of this research will be translated into Inuktitut, published and distributed throughout the North as a means of promoting public awareness and discussion of the issues.

**Division:**

Strategic Planning and Policy Development Division

**Contractor:**

Pauktuutit - Inuit Women's Association  
200 Elgin Street  
Suite 804  
Ottawa, Ontario  
K2P 1L5

**CIDN:**

1180 0100001

**Central Registry:**

4044-2

### SECOND STAGE HOUSING FOR ABORIGINAL WOMEN AND FRAMEWORK TO MEASURE THE IMPACT OF HOUSING CONDITIONS ON WELL-BEING OF ABORIGINAL WOMEN AND THEIR CHILDREN

**Objective:**

This two-part project has the following objectives:

- (a) Establish the need for "second-stage" housing for Aboriginal women (and their children) and develop a transferable community-based model for use across Canada.
- (b) Develop a framework to measure the impact of housing conditions on the well-being of Aboriginal women and their children (i.e., health, social impacts including family violence and sexual abuse, self-esteem, etc.).

**Division:**

Strategic Planning and Policy Development Division

**Contractor:**

Native Women's Association of Canada  
9 Melrose Avenue  
Ottawa, Ontario  
K1N 5P3

**CIDN:**

1152 0100001

**Central Registry:**

4044-2

#### **FROSTLINE: NORTHERN RESEARCH INTO HOUSING TECHNOLOGY: A PUBLICATION OF THE NoRTH COMMITTEE.**

*Ottawa: Canada Mortgage and Housing Corporation, Housing Innovation Division, Winter 1994.*

Several years ago, a group of agencies agreed to establish a forum for exchanging information. The group, known as the Northern and Remote Technology in Housing (NoRTH) Committee, is a sub-committee of the National Housing Research Committee. Participating agencies focus on improving housing quality, conserving natural resources and producing affordable shelter in the Canadian North. Members represent many interests - construction, housing research, economic development, finance, and resource management.

The articles in this publication describe various housing topics of relevance for northern Canada. They include: spaceframing; monocoque framing; Winter Cities '98; Native Housing Awards; and a warning about metal chimneys. The publication also provides a brief summary of six draft factsheets which were distributed to the NoRTH Committee for review and identifies the major research priorities of the Committee.

NOTE: Aussi disponible en français sous le titre : *Septentrion : recherche en technologie de l'habitation dans le Nord : publication du Comité du NoRD.*

#### **SEPTENTRION : RECHERCHE EN TECHNOLOGIE DE L'HABITATION DANS LE NORD : PUBLICATION DU COMITÉ DU NoRD.**

*Ottawa : Société canadienne d'hypothèques et de logement, Division de l'innovation dans l'habitation, hiver 1994.*

Il y a plusieurs années, un groupe d'organismes a convenu d'organiser un forum axé sur l'échange d'information. Le groupe responsable de la technologie de l'habitation en régions nordiques ou éloignées, connu sous le nom de Comité du NoRD, est un sous-comité du Comité national de recherche sur le logement. Les organismes participants se consacrent à améliorer la qualité de l'habitation, à préserver les ressources naturelles et à réaliser des logements abordables dans le Nord canadien. Les membres représentent les nombreux intérêts de la construction, de la recherche en habitation, du développement économique, des finances, et de la gestion des ressources.

Les articles dans cette publication traitent de divers sujets d'habitation et de leur à-propos pour le Nord. Ils comprennent : les fondations tridimensionnelles ; la structure monocoque; Villes d'hiver 98; les Prix d'excellence à l'égard du logement des Autochtones; et une mise en garde concernant les cheminées métalliques. La publication présente également un bref résumé de six feuillets documentaires provisoires qui ont été distribués aux membres du Comité du NoRD pour étude et identifie les principales priorités de recherche du Comité.

NOTE : Also available in English under the title: *Frostline: Northern Research into Housing Technology: A Publication of the NoRTH Committee.*



## Ongoing Projects/Projets en cours

### NORTH FILE FACT SHEETS

**Objective:**

To produce fact sheets on northern building technology camera-ready for production.

**Division:**

Housing Innovation Division

**Contractor:**

Scanada Consultants Limited  
446 Reynolds Street  
Oakville, Ontario  
L6J 3M4

**CIDN:**

0515 0300002

**Central Registry:**

6796-4-1

## PARKING GARAGES/SILOS À VOITURE

### Ongoing Projects/Projets en cours

#### VALIDATION OF RIMT TECHNOLOGY

##### Objective:

RIMT (Reflectometric Impulse Measurement Technique) is a non-destructive test method which may be useful in examining the condition of reinforcing tendons in post-tensioned concrete. This project aims to determine whether the RIMT method is able to detect the existence of corrosion defects anywhere along the cable; the degree of severity of the corrosion; the nature of the corrosion; the number of corroding wires in a strand; the location of the defect along the tendon; the presence and location of water in the cable; and the existence of discontinuities in the protective grease cover of the tendon.

##### Division:

Research Division

##### Contractor:

John A. Bickley Associates  
Limited  
27 Summerhill Avenue  
Toronto, Ontario  
M4T 1A9

##### CIDN:

0933 0200001

##### Central Registry:

6711-8

#### VALIDATION OF THE REFLECTOMETRIC IMPULSE MEASUREMENT OF TECHNOLOGY (RIMT)

##### Objective:

To assist CMHC in the validation of the reflectometric impulse measurement technology (RIMT) by evaluating the results of the work and providing a review of the final report.

##### Division:

Research Division

##### Contractor:

Dr. G.G. Litvan  
248 Range Road  
Ottawa, Ontario  
K1N 8J8

##### CIDN:

0933 0200003

##### Central Registry:

6711-8

#### VERIFICATION OF RIMT EQUIPMENT

##### Objective:

To assist J.A. Bickley Associates in the development of a research plan for the validation of RIMT technologies.

##### Division:

Research Division

##### Contractor:

Cordec International Inc.  
1390 Prince of Wales Drive  
Suite 103  
Ottawa, Ontario  
K2C 3N6

##### CIDN:

0933 0200002

##### Central Registry:

6711-8

## PLAYGROUNDS/JEUX, TERRAINS DE

### Ongoing Projects/Projets en cours

#### **UPDATING OF PLAYGROUND PUBLICATIONS AND SLIDE PRESENTATIONS FROM CHILDREN'S ENVIRON- MENTS ADVISORY SERVICE**

##### **Objective:**

Updating of playground publications and slides, with revisions in the areas of design, pictures, concepts and overall content to reflect changes in playground design standards and include greater emphasis on barrier-free design and injury prevention.

##### **Division:**

Housing Innovation Division

##### **Contractor:**

Betty Dion Enterprises Ltd.  
458 Melbourne Avenue  
Ottawa, Ontario  
K2A 1W3

##### **CIDN:**

1114 0300001

##### **Central Registry:**

6545-6

#### **TESTING HYPOTHESES ABOUT RENT CONTROLS: FINAL REPORT & FOLLOW-UP WORK ASSESSMENT.**

*Prepared by Frank T. Denton ... et al. Ottawa: Canada Mortgage and Housing Corporation, 1994.*

This study involved the formal statistical testing of a range of hypotheses about the effects of controls on the rental housing market. The data used in the study came from a variety of sources. They included metropolitan area time series for use in some of the tests and provincial time series for use in others. An important element of the study was a careful survey of the rent control regulations that have been in effect in the ten provinces over the period 1971-93. Based on that survey, a taxonomy of control regulations was developed. The taxonomy was used to classify each province/year to one of three categories: (A) no rent regulation; (B) rent control with review (mandatory); and (C) rent arbitration (voluntary). The subsequent analysis then sought to determine the effects of regulations of types B and C on the rate of increase of rents, the responsiveness of starts of apartment units to vacancy rates and rents, the level of vacancy rates in the rental market, the proportion of households that rent, the rates of conversion of single housing units into multiple units, and the proportion of rental units in need of major repairs.

The major conclusion of the study was that there appears to be no convincing evidence that rent regulations, as they existed in various provinces in Canada from the early 1970s through to the early 1990s, had significant effects on rents, on the construction of rental units, or on vacancy rates.



## Ongoing Projects/Projets en cours

### AMÉLIORER LA QUALITÉ DE NOTRE BASE DE DONNÉES INFORMATIQUES SUR LES LOGEMENTS LOCATIFS

**Objet :**

Améliorer la qualité de notre base de données informatique sur les logements locatifs en apportant des corrections sur les informations contenues dans cette base de données.

**Division :**

Division des services statistiques

**Contractant :**

Edna Suck  
Quantum

**NIC :**

1108 0400006  
1108 0400007

**Numéro de la gestion des documents :**

7120-1

### L'APPROCHE HÉDONIQUE ET LE MARCHÉ RÉSIDENTIEL LOCATIF : UNE APPLICATION À LA RÉGION DU QUÉBEC

**Objet :**

La recherche consiste à appliquer l'approche hédonique au marché résidentiel locatif de la région de Québec, dans le but d'établir, à l'aide des données du marché, le prix implicite des attributs résidentiels qui composent le niveau des loyers et partant, les valeurs immobilières.

**Division :**

Division de la recherche  
Programme de subventions de recherche

**Contractant :**

Monsieur François Des Rosiers  
Faculté des sciences de l'administration  
Université Laval  
Ste-Foy (Québec)  
G1K 7P4

**NIC :**

0920 0200001

**Numéro de la gestion des documents :**

6585/D033-3

### IMPACT D'UN PROGRAMME PARAMUNICIPAL SUR LE MARCHÉ DU LOGEMENT LOCATIF

**Objet :**

Déterminer si l'intervention PALL a eu des impacts sur le marché locatif avoisinant.

**Division :**

Division de la recherche  
Programme de subventions de recherche

**Contractant :**

Luba Serge  
29 rue Easton  
Montréal (Québec)  
H4X 1K9

**NIC :**

1287 0200001

**Numéro de la gestion des documents :**

6585-S084-1

### TENANT MANAGEMENT OF A ROOMING HOUSE

**Objective:**

To develop knowledge and expertise in the tenant management approach, particularly in the private rental market, and inform interested public or private rental market planners or proprietors.

**Division:**

Research Division  
External Research Program

**Contractor:**

Mr. Harry MacKay  
Social Research Consultant and Associates  
1 - 88 Marlborough Avenue  
Ottawa, Ontario  
K1N 8E9

**CIDN:**

1093 0200001

**Central Registry:**

6585/M103

## RESIDENTIAL DEVELOPMENT AMÉNAGEMENT RÉSIDENTIEL

Completed Reports/Rapports terminés

### **HYBRID RESIDENTIAL DEVELOPMENT: AN EXPLORATORY INVESTIGATION OF MULTI-USE RESIDENTIAL DEVELOPMENT.**

*Prepared by Barbara J. Orser, Equinox Management Consultants. Ottawa: Canada Mortgage and Housing Corporation, 1993. (External Research Program)*

This research presents the findings from 14 Canadian and American hybrid development case studies which combine residential and work spaces. Market and social factors impacting mixed-use (multi-use or hybrid) housing are noted. Spatial needs, building design and municipal zoning issues are also presented.

The case research suggests that to date, there are very few operational hybrid developments. The limited number of case examples noted suggests that hybrid design is in its infancy. Hybrid housing is, for the most part, developed by owner/designers, and hybrid designs tend to reflect both the owner's lifestyle and the nature of the work conducted. Large scale, Canadian, inner-city hybrid development may be limited to competitive designs and several western case examples. Edmonton's River Valley Estates Development integrates work in more traditional, out of home, small-business development centers within the same development block. Vancouver's artistic warehouse design exemplifies the opportunity to regenerate existing space in the inner city which is tailored to specific professional/residential needs. This B.C. case study is a good working model for other cities, such as Toronto, which are currently exploring similar industrial/residential development to suit an artistic clientele.

With respect to housing code and municipal development policy, the case studies suggest a need for more flexibility within the traditional zoning categories, providing for a mixed-use or residential/commercial category of usage. Building codes, which often set precedent for these municipal by-laws might also be reviewed to investigate their covert bias to traditional housing design.

### ALTERNATIVE PLANNING APPROACHES

**Objective:**

Prepare a research report entitled "Alternative Planning Approaches" which will review alternative approaches to community planning and design, such as "Neo-Traditional Designs", "Pedestrian Pockets", "Cohousing Communities" and "Eco-Villages".

**Division:**

Research Division

**Contractor:**

Hygeia Consulting Services  
430 Elm Road  
Toronto, Ontario  
M5W 3W7

**CIDN:**

1192 0200001

**Central Registry:**

6665-22

### THE EXTERNALITIES OF RESIDENTIAL DEVELOPMENT

**Objective:**

Prepare an authoritative paper entitled "The Externalities of Residential Development". The paper shall examine several common housing-related externalities in order to foster a more comprehensive understanding of some of the direct and indirect social, economic and environmental costs/impacts associated with our houses and our communities.

**Division:**

Research Division

**Contractor:**

Sheltair Scientific Limited  
2-3661 West 4th Avenue  
Vancouver, British Columbia  
V6R 1P2

**CIDN:**

0982 0200001

**Central Registry:**

6665-16

### HOUSING THE NEW FAMILY: PROSPECTS FOR FAMILY ORIENTED RESIDENTIAL INTENSIFICATION

**Objective:**

To research the existing literature relating to current trends in the composition and housing characteristics of Canadian family households, and develop residential design principles which balance the need for more intensive forms of residential development with the requirements of families with children.

**Division:**

Research Division  
Centre for Future Studies in  
Housing and Living Conditions  
Experts in Residence Program

**Contractor:**

Laura Johnson  
374 Sackville Street  
Toronto, Ontario  
M4X 1S5

**CIDN:**

1015 0200001

**Central Registry:**

6855-5

### SUMMARY REPORT ON HOUSING THE NEW FAMILY

**Objective:**

To produce a document that communicates the key findings of a larger research report, as part of the International Year of the Family 1994.

**Division:**

Research Division

**Contractor:**

Laura Johnson  
374 Sackville Street  
Toronto, Ontario  
M4X 1S5

**CIDN:**

1015 0202002

**Central Registry:**

6855-5

## Ongoing Projects/Projets en cours

### FACTORS INFLUENCING RESIDENTIAL MOBILITY AMONG FAMILIES WITH CHILDREN LIVING IN A LOW-INCOME AREA IN WINNIPEG, MANITOBA

#### Objective:

To understand how  
low-income families with  
school-aged children perceive  
their residential mobility, its  
causes and consequences.

#### Division:

Research Division  
External Research Program

#### Contractor:

Dr. Nancy C. Higgitt  
Department of Family Studies  
University of Manitoba  
Winnipeg, Manitoba  
R3T 2N2

#### CIDN:

1090 0200001

#### Central Registry:

6585/H061-2



# RESIDENTIAL REHABILITATION RÉNOVATION DE LOGEMENTS

## Completed Reports/Rapports terminés

### RENTAL REPAIR AND RENOVATION EXPENDITURE SURVEY: ANALYSIS OF PILOT-TEST: FINAL REPORT.

*Prepared by Stephen Arrowsmith, Laurie Reedman and Scott Buchanan, Special surveys Group, Statistics Canada. Prepared for Statistical Services, Canada Mortgage and Housing Corporation. Ottawa: Statistics Canada, Special Surveys Program, 1994.*

This pilot study, commissioned by Canada Mortgage and Housing Corporation, was undertaken to assess the recommended methodology for conducting a National Rental Repair and Renovation Expenditure Survey (RRRES).

The RRRES is intended to collect expenditure information for work done on residential rental buildings. The information to be collected included expenditures for additions, renovations or alterations, replacement of existing equipment and/or new installations, and repairs and maintenance. The methodology for the RRRES was based on two key factors: first, the lack of administrative data that would provide an exhaustive listing of landlords from which a sample could be selected; and second, the perceived need for landlords to review expenditure records prior to completing the questionnaire. Based on these two factors the survey was designed as a mail-out/mail-back using the Labour Force Survey as a means for identifying the rental dwellings.

The findings from the pilot test indicate that the survey can be successfully conducted with only the following minor modifications:

- The survey methodology should combine both mail-out/mail-back and telephone interview collection procedures. During the pilot-test a 75% response rate was achieved;
- Due to the large amount of public housing, the sample size will have to be increased to ensure adequate "hit-rates";
- The tracing procedures will need to be modified to streamline the process for a full-scale survey;
- The screening procedures require further automation to reduce clerical work in the regional offices; and
- The questionnaire only requires minor modification to facilitate the reading of instructions and the listing of dwellings.

**ASSESSMENT REPAIR  
STRATEGY FOR EXISTING  
BUILDINGS CONSTRUCTED  
WITH MASONRY VENEER  
STEEL STUD WALLS**

**Objective:**

To develop an assessment strategy in four phases for repair of buildings constructed with brick veneer steel stud systems.

**Division:**

Housing Innovation Division

**Contractor:**

T.W.J. Trestain  
573 Durie Street  
Toronto, Ontario  
M6S 3H2

**CIDN:**

0937 0300001

**Central Registry:**

6796-3-8

**CMHC/NRCAN/CHBA  
RENOVATION DEMONSTRATION  
PILOT PROJECT  
(RENO-DEMO)**

**Objective:**

To demonstrate the potential for environmentally responsible renovations on a home which could be representative of others in its neighbourhood and to promote the concept of healthy housing which respects both the occupants health and the outside environment.

**Division:**

Housing Innovation Division

**Contractor:**

Red Deer Home Builders  
Association  
#201 - 7819 - 50 Avenue  
Red Deer, Alberta  
T4P 1M8

**CIDN:**

1202 0300001

**Central Registry:**

6507-23

**MASONRY VENEER STEEL  
STUD RENOVATION  
STRATEGIES**

**Objective:**

To assess repair strategies for brick veneer/steel stud systems.

**Division:**

Housing Innovation Division

**Contractor:**

University of Waterloo  
Building Engineering Group  
Waterloo, Ontario  
N2L 3G1

**CIDN:**

0787 0300001

**Central Registry:**

6796-3-7

**INCUMBENT UPGRADING  
IMPLICATION FOR  
RESIDENTIAL  
REVITALIZATION**

**Objective:**

This study will involve conducting theoretical and empirical research into incumbent upgrading.

**Division:**

Research Division  
External Research Program

**Contractor:**

Ms. Christine Diane McKee  
University of Manitoba  
Department of City Planning  
201 Russell Building  
Winnipeg, Manitoba  
R3T 2N2

**CIDN:**

1094 0200001

**Central Registry:**

6585/M105

**1994 SURVEY OF  
HOMEOWNER REPAIR AND  
RENOVATION EXPENDITURE**

**Objective:**

To conduct a survey of homeowner repair and renovation expenditure as a supplement to the March 1994 Labour Force survey.

**Division:**

Market Analysis Centre

**Contractor:**

Statistics Canada  
Census Operations  
Tunney's Pasture  
Ottawa, Ontario  
K1A 0T6

**CIDN:**

1231 1000001  
1231 1001001

**Central Registry:**

7060-1

**PILOT STUDY ON  
RENOVATION OF GENERIC  
HOUSING SYSTEM**

**Objective:**

To prepare, review with regional team members and submit to CMHC a draft report on generic house and component types, safe renovations, retrofits, and potential impacts from which detailed renovation guides can be selected and developed.

**Division:**

Research Division  
Panel on Energy R&D

**Contractor:**

Scanada Consultants Limited  
436 MacLaren Street  
Ottawa, Ontario  
K2P 0M8

**CIDN:**

0831 0800001

**Central Registry:**

6503-20

## SECURITY SYSTEMS/SÛRETÉ — SYSTÈMES

### Ongoing Projects/Projets en cours

#### SECURITY SYSTEM FOR MODULE HOUSE

##### Objective:

Purchase and installation of monitoring devices and shunting security system for the module house.

##### Division:

Research Division

##### Contractor:

INFR Graphic Systems Inc.  
10 Hearst Way  
Kanata, Ontario  
K2L 2P4

##### CIDN:

0938 1100005

##### Central Registry:

PR277

## SEWAGE DISPOSAL/EAUX USÉES

### Ongoing Projects/Projets en cours

#### IMPROVEMENTS IN ON-SITE WASTEWATER TREATMENT

**Objective:**

To evaluate the performance of household water conservation, in association with an innovative technology for septic tank effluent treatment and nitrogen removal, to provide more cost-effective and reliable on-site wastewater treatment.

**Division:**

Research Division

**Contractor:**

Technical University of Nova Scotia  
Centre for Water Resources Studies  
P.O. Box 1000  
Halifax, Nova Scotia  
B3J 2X4

**CIDN:**

1047 0200001

**Central Registry:**

6785-5

#### LOWER COST ALTERNATIVE FOR MUNICIPAL SEWER INSPECTION AND MAINTENANCE

**Objective:**

To reduce subdivision servicing costs by the design, development and testing of a technically sound and innovative structure to replace, at a lower cost, the conventional manhole.

**Division:**

Research Division  
External Research Program

**Contractor:**

Butler Krebs & Associates Inc.  
8616 - 51 Avenue  
Suite 210  
Edmonton, Alberta  
T6E 6E6

**CIDN:**

1274 0200001

**Central Registry:**

6585/K040-1



#### **AVOIDING THE GHETTO: A PRELIMINARY EXPLORATION OF LOCATIONAL CHARACTERISTICS OF POST '85 SOCIAL HOUSING PROJECTS.**

*Prepared by David Hajesz. Prepared for Strategic Planning and Policy Development Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.*

This study explored changes in the size and locations of social housing projects by comparing post '85 projects with those of earlier eras. Locations were assessed to try to ascertain whether post '85 projects were creating concentrations of social housing or enlarging existing ones. Average distances between the projects were calculated to reveal rates of dispersion. The socio-economic conditions of neighbourhoods containing recent projects and the proximity of those projects to various services were also examined. Data for the study was collected from five cities across Canada: Halifax, Saskatoon, St John's, Windsor and Coquitlam.

The data shows that post '85 projects were smaller, but less dispersed than the policymakers intended. The socio-economic profiles of the neighbourhoods of the test-case projects indicated conditions that were consistent with, or better than, the averages for their CMAs. The basic services essential to quality of life were found to be, on average, within distances assumed appropriate. The average distance travelled to services required on a daily basis was 0.650 kilometres. For weekly services, it was 1.681 kilometres; for monthly services, it was 2.726 kilometres. There was no consistency as to which services were furthest away, nor any notable difference between cities.

#### **IMPACTS OF SOCIAL HOUSING: FINAL REPORT.**

*Prepared by Ekos Research Associates Inc. for Strategic Planning and Policy Development Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.*

This research analyzed concerns about social housing through a telephone survey of residents living in close proximity to 15 social housing projects and of a comparison group of residents living in communities without social housing in four cities in different regions of the country: Vancouver, Ottawa, Montreal and Halifax. The survey asked participants to identify the impacts - both positive and negative - of social housing projects on local residents, neighbourhoods, and on the market value of nearby properties.

In general, the results of the survey indicated high neighbourhood satisfaction regardless of whether the residents lived close to social housing projects or not. The most serious concerns expressed by study participants about social housing were similar to the ones reported in previous studies: property values, the upkeep of the project and the uncertainty associated with poor communication about the project before and during implementation.

With respect to the examination of property values, the housing sales data showed that social housing did not have a negative effect on property values. Despite this finding however, almost half of the survey respondents believed that social housing had a negative impact on property values, suggesting an important difference between the real and perceived threats to neighbourhoods from the introduction of social housing.

Several measures were identified to minimize the potential perceived negative effects of social housing on communities. While there is strong public support for the principle of social housing, it is important to maintain a fair distribution of social housing units. Communities with existing units should not feel that they are receiving more than their fair share. It is also important to communities that projects fit into their neighbourhoods. Project design features should be considered from this perspective.

## **RECLAIMING URBAN NEIGHBOURHOODS: ASSESSING NEW STRATEGIC APPROACHES TO SECURITY IN 11 CANADIAN SOCIAL HOUSING COMMUNITIES.**

*Prepared by Robert G. Hahn and Kathryn Asbury, The Research Group. Ottawa: Canada Mortgage and Housing Corporation, 1993.*

This report documents the results of a project funded jointly by Canada Mortgage and Housing Corporation and the Metropolitan Toronto Housing Authority (MTHA). Its primary objectives are to evaluate security initiatives undertaken in 11 communities within the MTHA and assess whether the lessons learned are applicable to four other social housing communities in St. John, Halifax, Winnipeg and Edmonton.

The project pays particular attention to the Safe Neighbourhood Initiative (SNI) that was launched in March 1991 to improve the safety in MTHA communities. The SNI experience confirms the value of the Strategic Security Framework (SSF) which focuses on reducing threats by assessing them in terms of the type of threat, spinoffs, seriousness of the threat, type of offender, type of victim, location and timing. When the nature of the threat is fully understood, an effective strategy to combat it can be put in place.

The SNI experience has also reaffirmed the SSF principle that community development must be a significant part of most security strategies. Moreover, community development occurs most effectively if it involves not only specialists, but every staff member, resident and stakeholder in the community. Although SNI communities should be proud of the improvements they have achieved, serious threats to security still remain. Ongoing effort will be required to create and maintain safe social housing communities.

NOTE: Aussi disponible en français sous le titre : *Reprise en main des quartiers urbains : évaluation des nouvelles démarches stratégiques en matière de sécurité dans onze collectivités canadiennes de logements sociaux.*

## **REPRISE EN MAIN DES QUARTIERS URBAINS : ÉVALUATION DES NOUVELLES DÉMARCHES STRATÉGIQUES EN MATIÈRE DE SÉCURITÉ DANS ONZE COLLECTIVITÉS CANADIENNES DE LOGEMENTS SOCIAUX.**

*Préparé par Robert G. Hahn et Kathryn Asbury, The Research Group. Ottawa: Société canadienne d'hypothèques et de logement, 1993.*

Ce rapport consigne les résultats d'un projet financé conjointement par la Société canadienne d'hypothèques et de logement et par la Commission de logement de la Communauté urbaine de Toronto (CLCUT). Ses objectifs principaux sont d'évaluer les initiatives de sécurité prises par onze collectivités au sein de la CLCUT et de déterminer si les leçons qui en ont été tirées sont applicables à d'autres collectivités de logements sociaux à St. John, Halifax, Winnipeg et Edmonton.

Le projet a porté surtout sur l'Initiative de sécurité de quartier (ISQ) lancée en mars 1991 afin d'améliorer la sécurité au sein de la CLCUT. L'expérience de l'ISQ a confirmé la valeur d'une démarche particulière, le cadre de la stratégie de sécurité (CSS) qui met l'accent sur la répression de menaces particulières à la sécurité en les évaluant selon le type de menace, les retombées, la gravité de la menace, le genre de contrevenant, le genre de victime, l'endroit et le moment. Quand on comprend très bien la nature de la menace, on peut mettre en oeuvre une stratégie efficace pour la neutraliser.

## SOCIAL HOUSING/LOGEMENT SOCIAL

L'expérience de l'ISQ a aussi confirmé le principe, énoncé dans le cadre du CSS, que le développement communautaire doit former une partie importante de la plupart des stratégies en matière de sécurité. En outre, le développement communautaire est plus efficace s'il est effectué non seulement par des spécialistes, mais aussi par chaque membre du personnel, par chaque résident et par tous les autres intervenants de la collectivité. Bien que les collectivités qui ont participé à l'ISQ doivent être fières des améliorations qu'elles ont réalisées, de graves menaces à la sécurité existent toujours. L'établissement et le maintien des collectivités sûres nécessiteront de nombreux efforts continus.

NOTE : Also available in English under the title: *Reclaiming Urban Neighbourhoods: Assessing New Strategic Approaches to Security in 11 Canadian Social Housing Communities.*

### Ongoing Projects/Projets en cours

#### ANALYSIS OF THE RELATIVE COST AND EFFECTIVENESS OF SELECTED SOCIAL RENTAL HOUSING PROGRAMS

##### Objective:

To assess the effectiveness of selected rental housing programs in addressing the problems of affordability, adequate supply, and housing quality. The study will determine how traditional non-profit supply programs and shelter allowances perform, over time under different market conditions.

##### Division:

Senior Vice-President's Office  
Policy, Research and  
Communications

##### Contractor:

Canadian Housing and  
Renewal Association  
251 Laurier Avenue West  
Suite 304  
Ottawa, Ontario  
K1P 5J6

##### CIDN:

1351 0600001

##### Central Registry:

8745-5

#### CREATION OF THE LONGITUDINAL ADMINISTRATIVE DATABASE (LAD) AND LINKAGE OF SOCIAL HOUSING DATA

##### Objective:

To create a longitudinal database of Canadians, individuals with their family characteristics over the period from 1982 to 1993; to link information on social housing to the longitudinal database using project name and addresses.

##### Division:

Research Division

##### Contractor:

Statistics Canada  
26th Floor, RHC  
Tunney's Pasture  
Ottawa, Ontario  
K1A 0T6

##### CIDN:

0895 0200001

##### Central Registry:

6855-9-2

#### CUSTOMIZED ANALYSIS OF CHANGING SOCIAL VALUES AND THE POTENTIAL IMPLICATIONS FOR SOCIAL HOUSING POLICY

##### Objective:

To carry out a customized analysis of changing social values and the potential implications for social housing policy, based on the Environics monitor of social change (3SC monitor).

##### Division:

Research Division

##### Contractor:

Environics Research Group  
Limited  
45 Charles Street East  
Toronto, Ontario  
M4Y 1S2

##### CIDN:

1264 0100001

##### Central Registry:

0439/6



## **DEVELOPMENT OF INDICATORS OF QUALITY OF LIFE, HEALTH AND WELL-BEING IN CANADIAN SOCIAL HOUSING**

### **Objective:**

To develop indicators of health and well-being which would apply to social housing and could be used in the upcoming CMHC evaluation of its urban social housing programs.

### **Division:**

Research Division

### **Contractor:**

Veronica Doyle  
1317 Richardson Street  
Victoria, British Columbia  
V8S 1P6

### **CIDN:**

1023 0200003

### **Central Registry:**

6855-9-3

## **DOCUMENTATION AND EVALUATION OF THE REDEVELOPMENT OF THE STRATHCONA HEIGHTS PROJECT**

### **Objective:**

Establish advisory committee; review files; conduct surveys and detailed interviews; organize and analyze results of Phase 3; provide interim report on the evaluation of the Strathcona Heights redevelopment to the Corporation for comment; provide final version of the interim report; produce draft final versions of printed materials and slide show and script; produce final version of the PTD mat and slide show; provide presentations to various audiences.

### **Division:**

Housing Innovation Division

### **Contractor:**

The City of Ottawa  
Dept. of Housing & Property  
300-11 Holland Avenue  
Ottawa, Ontario  
K1Y 4T2

### **CIDN:**

1145 0300001

### **Central Registry:**

6615-16

## **ESTABLISHING RENT-TO-INCOME RATIOS IN PUBLIC POLICY**

### **Objective:**

Study the various rent-to-income scales used for publicly-assisted housing and, where applicable, recently introduced shelter allowances across the country. Results of the study will provide a basis for establishing rent-to-income scales which would guarantee equitably amongst all households the ability to afford a norm minimum of necessary non-shelter goods and services.

### **Division:**

Research Division  
External Research Program

### **Contractor:**

J. Patterson  
97 Robert Street  
Toronto, Ontario  
M5S 2K5

### **CIDN:**

0079 0200001

### **Central Registry:**

6585/P10-1



## **SUSTAINABLE DEVELOPMENT DÉVELOPPEMENT DURABLE**

### **Completed Reports/Rapports terminés**

#### **L'HABITATION ÉCOLOGIQUE : JOURNAL DE LA SCHL CONSACRÉ À L'HABITATION ET À L'ENVIRONNEMENT (LNH 6756).**

*Ottawa : Société canadienne d'hypothèques et de logement, Division de l'innovation dans l'habitation en collaboration avec la Division de la recherche, 1993-1994.*

Ce journal de 8 pages en format tabloid traite principalement des activités de la Société canadienne d'hypothèques et de logement dans le domaine des habitations écologiques. Il fournit des renseignements sur la qualité de l'air intérieur, la réduction du bruit, l'économie de l'eau, les produits de bâtiments recyclés ainsi que sur la Maison saine et la Maison évolutive.

NOTE: Also available in English under the title: *Under a Green Roof: A CMHC Newspaper on Housing and the Environment (NHA 6755).*

#### **UNDER A GREEN ROOF: A CMHC NEWSPAPER ON HOUSING AND THE ENVIRONMENT (NHA 6755).**

*Ottawa: Canada Mortgage and Housing Corporation, Housing Innovation Division in co-operation with the Research Division, 1993-1994.*

This eight-page newspaper in tabloid format deals primarily with the activities of Canada Mortgage and Housing Corporation in the field of environmentally friendly housing. The newspaper provides information on indoor air quality, noise reduction, water conservation, and recycled building products as well as on Healthy Housing and the Grow Home.

NOTE: Aussi disponible en français sous le titre : *L'Habitation écologique : journal de la SCHL consacré à l'habitation et à l'environnement (LNH 6756).*

#### **AMÉNAGEMENTS DOMICILIAIRES DURABLES : PRINCIPES D'AMÉNAGEMENT, DE CONCEPTION ET DE CONSTRUCTION : LA MAISON ÉVOLUTIVE "VERTE".**

*Préparé par Avi Friedman, Vince Cammalleri ... et autres. Préparé pour le Programme La Maison à coût abordable, École d'architecture, Université McGill et la Division de la recherche, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1993.*

Les qualités inhérentes de la maison évolutive lui confèrent un droit de cité dans toute discussion sur les types d'habitations conformes aux impératifs du développement durable. Cette étude porte sur tout un éventail d'aspects relatifs à l'aménagement, la conception et la construction d'ensembles domiciliaires durables, en prenant comme exemple la maison évolutive. Le rapport se répartit en trois volets.

Dans un premier temps, l'étude se penche sur plusieurs aspects de la maison proprement dite, depuis les principes généraux d'aménagement jusqu'aux détails de l'enveloppe du bâtiment. Elle traite, entre autres, d'aménagements paysagers et de plomberie efficaces quant à la consommation d'eau, d'élimination responsable des ordures ménagères et d'une bonne qualité d'air intérieur. Elle a également examiné l'incidence de certains systèmes, composants et matériaux sur l'environnement pendant tout leur cycle de vie, à savoir les matériaux de construction de base, le fenêtrage, les installations mécaniques et les nouveaux

murs préfabriqués. Sous chaque rubrique, l'accent a été mis sur les stratégies propres à réduire l'incidence environnementale des diverses solutions proposées pour la conception. Il s'agit notamment d'économiser l'énergie et de conserver les autres richesses naturelles, de réduire au minimum la pollution des sols, des eaux et de l'air, et de pourvoir à un milieu intérieur sain.

Le second volet du rapport traite d'aspects plus généraux sur les plans environnemental, social et économique, dans la mesure où ils influent sur le lotissement et les plans d'implantation. Ici, le rapport met en lumière sur la création de collectivités "durables". Les stratégies proposées pour la construction d'ensembles domiciliaires sont non seulement écologiques et économes en matière de ressources, mais ils favorisent un milieu de vie agréable, confortable et fonctionnel. Il est question de plans d'emplacement, de circulation et de stationnement automobiles, des espaces extérieurs, du confort environnemental et de l'identité domiciliaire. Les solutions de rechange sont illustrées dans le troisième volet, sous la forme de trois modèles d'aménagements urbains différents au chapitre de la densité, des types d'habitations et des plans.

NOTE : Also available in English under the title: *Sustainable Residential Developments*.

### **SUSTAINABLE RESIDENTIAL DEVELOPMENTS: PLANNING, DESIGN AND CONSTRUCTION PRINCIPLES: "GREENING" THE GROW HOME.**

*Prepared by Avi Friedman, Vince Cammalleri ... et al. Prepared for the Affordable Homes Program, School of Architecture, McGill University and the Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1993.*

The inherent qualities of the Grow Home make it an appropriate housing form in any discussion on sustainable development. This study investigates a broad range of issues related to planning, design and construction of sustainable residential developments, using the Grow Home as a case study. The report is divided into three parts.

The first part addresses several aspects of the housing unit, ranging from general planning approaches through design and detailing of the building envelope. Water-efficient landscapes and plumbing fixtures, responsible domestic waste disposal and good indoor air quality are among the topics covered. The effect of specific building systems, components and materials on the environment throughout their life cycle is also examined, including basic construction materials, window units, mechanical systems and prefabricated wall alternatives. For each subject, the discussion focuses on strategies for minimizing the environmental impact of design solutions. This includes conserving energy and other natural resources, minimizing land, water and air pollution, and providing for healthy indoor environments.

The second part of the report examines environmental, social and economic issues as they apply to lot subdivision and site planning. Here, the study concentrates on the creation of sustainable communities. Strategies for building housing developments are proposed which are not only resource-efficient and ecologically-sound, but which provide pleasant, comfortable and functional living environments. Topics include site planning, vehicular circulation and parking, outdoor spaces, environmental comfort and housing identity. Alternative approaches to these are illustrated in the third part of the report through three examples of urban developments with varying densities, housing types and planning approaches.

NOTE: Aussi disponible en français sous le titre : *Aménagements domiciliaires durables*.

## SUSTAINABLE DEVELOPMENT DÉVELOPPEMENT DURABLE

### Ongoing Projects/Projets en cours

#### CMHC COLLABORATION WITH FCM CONCERNING THE OECD PROJECT GROUP ON THE ECOLOGICAL CITY

**Objective:**

To produce a draft national overview paper and undertake other activities to represent Canada in relation to the project of the Organization for Economic Cooperation and Development (OECD) entitled "The Ecological City".

**Division:**

International Relations  
Division

**Contractor:**

Federation of Canadian  
Municipalities  
24 Clarence Street  
Ottawa, Ontario  
K1N 5P3

**CIDN:**

1313 0900001

**Central Registry:**

4305-4-13

#### THE DEVELOPMENT OF ALTERNATIVE SITE PLAN FOR THE CMHC NATIONAL OFFICE LANDS

**Objective:**

Using CMHC National Office lands as a case study, this project will develop alternative site plans which respond to the imperatives of sustainable suburban development. The study will assess and document the constraints and impediments to more sustainable subdivision plans.

**Division:**

Research Division

**Contractor:**

Barry J. Hobin & Assoc. Arch.  
Inc.  
Glebe Chambers  
711 Bank Street  
Ottawa, Ontario  
K1S 3V1

**CIDN:**

1205 0200001

**Central Registry:**

3895-14

#### OPPORTUNITIES FOR ACCELERATING THE IMPLEMENTATION OF ENVIRONMENTALLY SUSTAINABLE HIGH PERFORMANCE HOUSING

**Objective:**

To review current housing innovations and select five having the greatest potential for positive environmental impact; to assess their advantages and industry readiness to incorporate them into construction practice; to identify and present opportunities, impediments and strategies to bring innovations into mainstream housing.

**Division:**

Research Division  
External Research Program

**Contractor:**

Robert J. Booth  
Hansed Booth Incorporated  
Box 73A, R.R.#1  
Dalkeith, Ontario  
K0B 1E0

**CIDN:**

1271 0200001

**Central Registry:**

6585/B097

## **REVIEW OF CMHC HOUSING DEVELOPMENT PLANS**

### **Objective:**

To review three housing development plans with a view to suggesting how permaculture could best be integrated into the plans.

### **Division:**

Research Division

### **Contractor:**

Linda Chapman Architect  
27 Third Avenue  
Ottawa, Ontario  
K1S 2J5

### **CIDN:**

1205 0200002

### **Central Registry:**

3895-10

## **TESTING CONSUMER RECEPTIVITY TO SUSTAINABLE AND MORE AFFORDABLE SUBURB DESIGN IN CALGARY**

### **Objective:**

To address the question: are Canadian consumers (houseseekers, homebuyers) receptive to residential community design that incorporates sustainable development principles and performance characteristics?

### **Division:**

Research Division

### **Contractor:**

William T. Perks  
Faculty of Environmental  
Design  
Calgary University  
2500 University Drive, N.W.  
Earth Sciences  
Calgary, Alberta  
T2N 1N4

### **CIDN:**

1278 0200001

### **Central Registry:**

6585/P011-3



## Ongoing Projects/Projets en cours

### THE CHANGING CANADIAN METROPOLIS

**Objective:**

To develop and manage a consortium of authors and reviewers as well as an examination of recent significant changes in social, economic and political conditions in Canada's largest urban areas.

**Division:**

Research Division

**Contractor:**

York University  
4700 Keele Street  
North York, Ontario  
M3J 1P3

**CIDN:**

0534 0200001

**Central Registry:**

0250/Y1

### LES ENSEMBLES RÉSIDENTIELS ET LA SÉCURITÉ ROUTIÈRE

**Objet :**

La présente recherche porte sur l'étude des rapports entre la forme des milieux résidentiels et la sécurité des déplacements des différents usagers de la routes.

**Division :**

Division de la recherche  
Programme de subventions de recherche

**Contractant :**

Denise Piché  
École d'architecture  
Université Laval  
Québec (Québec)  
G1K 7P4

**NIC :**

0925 0200001

**Numéro de la gestion des documents :**

6585/P019-2

### PAYSAGES DE L'INTERIEUR DANS L'ÎLE DE MONTRÉAL

**Objet :**

Cette étude part du pré-misse que le paysage public Montréalais a été principalement conçu à partir de courants de pensées externes certains étant bien connus, identifiés et documentés mais que par contre on ne sait presque rien sur le sens qu'accordent des Montréalais à leur paysage à travers propres interventions et commandes paysagères.

**Division :**

Division de la recherche  
Programme de subventions de recherche

**Contractant :**

Madame Daniele Routaboule  
École d'Architecture de Paysage  
Université de Montréal  
5620 rue Darlington  
Montréal (Québec)  
H3C 3J7

**NIC :**

1284 0200001

**Numéro de la gestion des documents :**

6585-R039-1

### POST-SYMPOSIUM REPORT - NEW VISIONS IN URBAN TRANSPORTATION

**Objective:**

To support the preparation of the post symposium report for new visions in urban transportation, as generated in a symposium convened by the Federation of Canadian Municipalities, Canadian Institute of Planners and the Transportation Association of Canada.

**Division:**

Research Division

**Contractor:**

Transportation Association of Canada  
2323 St. Laurent Boulevard  
Ottawa, Ontario  
K1G 4K6

**CIDN:**

1308 0200001

**Central Registry:**

6855-2

#### **COMMISSIONING AND MONITORING THE BUILDING ENVELOPE FOR AIR LEAKAGE.**

*Prepared by Richard L. Quirouette and David L. Scott, Morrison Hershfield Ltd.  
Prepared for Housing Innovation Division, Canada Mortgage and Housing Corporation, Ottawa: CMHC, 1993.*

Damage to building envelopes associated with air leakage has substantial consequences for building owners and users. Energy costs increase, user comfort decreases, and the owner's repair and capital replacement budgets soar. Commissioning the air-barrier within the building envelope can help control these consequences. The term commissioning, understood by many to be a process which starts at the completion of a project has been modified significantly. Within this document an approach is provided to extend the air-barrier commissioning process to the project brief, validation of the design and progressive certification during and possibly following construction.

At the project brief stage, the owner must define clear performance requirements for the air-barrier. The project design team responds with a progression of validated details from concept to final tender documents that ensures the performance specified in the project brief can be achieved if constructed as specified. During construction, progressive certification of the performance of critical materials, components and assemblies is required to ensure that the project, as constructed, meets the same performance requirements. At completion, the air-barrier may or many not be commissioned as a whole. The commissioning process described is intended to provide an owner with an air-barrier suitable for the particular building at the completion of construction. To ensure continued performance over the lifetime of the building an approach to performance monitoring, maintenance and repair is also provided in this document.

# VENTILATION/VENTILATION

## DESIGN AND DEVELOPMENT OF AIR VENT CLOSURE SYSTEMS: A FINAL REPORT: PHASE III.

*Prepared by Buchan, Lawton, Parent Ltd. Prepared for Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994. (Housing Technology Incentives Program)*

This report documents the design and development of an automatic vent closure system for residential exhaust systems. The initial design and development efforts led to the fabrication of prototypes of the air vent closure system which were suitable for installation at the outdoor termination points of 150 mm round and 87 mm x 254 mm rectangular exhaust ducts. Each device contained a single 9 V battery, which opened the hood damper upon the commencement of air flow within the exhaust duct and shut it upon the termination of the exhaust air flow.

An evaluation of the performance of the devices in actual field tests demonstrated the viability of the concept of an inexpensive, self-contained, relatively airtight and well-insulated closure for residential exhaust vents. The major complications concerned the effects of frozen condensate on the operation of the air flow pressure sensor and the closure mechanism's damper. Additionally, the use of a DC battery to power the device placed limitations on the operation time, cold weather performance, and associated control options. All but one of the aforementioned limitations of the design were resolved by changing the power source from a 9 V battery to a common 9 V DC/120 V AC adapter. The problem of the damper mechanism freezing shut still remained, but it was envisioned that the use of alternative materials for the damper (such as polyethylene) and gasket materials would prevent such occurrences in the future.

The shop and field testing of the devices led to design refinements that ultimately improved the viability of the concept from the standpoints of the practicality and marketability of the vent closure system device. The final prototype will be used to demonstrate the concept to potentially interested manufacturers of ventilation related equipment for inclusion in their product lines.

### Ongoing Projects/Projets en cours

#### DEVELOPMENT OF EFFICIENCY IMPROVEMENT TIMELINESS FOR RESIDENTIAL VENTILATION EQUIPMENT

##### Objective:

To assemble information on residential mechanical ventilation equipment (fans, blowers, heat exchangers) to develop a consensus on how quickly the efficiency of these devices can and should be improved over the next decade.

##### Division:

Research Division

##### Contractor:

Buchan Lawton Parent Ltd.  
5370 Canotek Road  
Ottawa, Ontario  
K1J 8X7

##### CIDN:

1242 0200001

##### Central Registry:

6766-4

#### EASE AIR BARRIER SYSTEM

##### Objective:

To aid the APCHQ and NRCan in the construction and evaluation of the External Air Barrier System Element (EASE) Demonstration Project. An energy-efficient house was constructed using a new wall assembly which incorporates a structural air barrier that is permeable to water vapour. The air barrier allows excess humidity in the home to migrate through the walls without causing wall

degradation. This project will evaluate the performance of this wall assembly for moisture migration and structural soundness.

##### Division:

Housing Innovation Division

##### Contractor:

Morrison Hershfield Ltd.  
2440 Don Reid Drive  
Ottawa, Ontario  
K1H 8P5

##### CIDN:

1044 0300002

##### Central Registry:

6796-17

## **ELECTRONIC SMOKE PENCIL**

### **Objective:**

The design and development of a battery operated electronic air leakage detection device.

### **Division:**

Research Division

### **Contractor:**

Sigmin Enterprises  
9 Milne Crescent  
Kanata, Ontario  
K2K 1H7

### **CIDN:**

1269 0200001

### **Central Registry:**

6521-28/93

## **HARMONIZATION OF VENTING TERMINOLOGY**

### **Objective:**

To identify all Canadian and United States of America codes and standards that use venting terms, developing a set of harmonized terms and definitions used in venting codes and standards.

### **Division:**

Research Division

### **Contractor:**

Buchan Lawton Parent Ltd.  
5370 Canotek Road  
Ottawa, Ontario  
K1J 8X7

### **CIDN:**

1078 0200001

### **Central Registry:**

6718-15-1

## **PARE-AIR RIGIDE**

### **Objet :**

Identifier les différents matériaux pouvant être utilisés pour la réalisation d'un pare-air en panneaux rigides en tenant compte de différents types d'application définis.

### **Division :**

Division de la recherche

### **Contractant :**

Mario V. Petrone  
200 - 2545 rue Delorimier  
Longueuil (Québec)  
J4K 3P7

### **NIC :**

1280 0200001

### **Numéro de la gestion des documents :**

6585/P057

## **PRESSURE MODERATED SCREENED WALL SYSTEMS**

### **Objective:**

To study the mechanics involved and to attempt to quantify the number, nature and location of vents in the exterior screen of per walls for optimum ventilation drying and pressure moderation; to measure the extent and mechanism of ventilation drying in an idealized per wall; and to measure the extent and mechanism of pressure moderation in an idealized per wall.

### **Division:**

Research Division

### **Contractor:**

Eric F.P. Burnett  
University of Waterloo  
Waterloo, Ontario  
N2L 3G1

### **CIDN:**

1273 0200001

### **Central Registry:**

6585/B102

## **SCIENTIFIC RESEARCH AND DEVELOPMENT CONCERNING VENTILATION SYSTEMS FOR NEW AND EXISTING HOUSES WITH ELECTRIC BASEBOARD HEATING**

### **Objective:**

To identify designs of simple ventilation air distribution systems that are suitable for new and existing houses that lack fully ducted forced-air heating systems.

### **Division:**

Research Division

### **Contractor:**

National Research Council  
Institute for Research in  
Construction  
Building M-20  
Ottawa, Ontario  
K1A 0R6

### **CIDN:**

1124 0800001

### **Central Registry:**

6725-18-1



## VENTILATION/VENTILATION

### VENTILATION CONTROL IN MEDIUM AIRTIGHTNESS HOUSES

**Objective:**

To monitor houses with mechanical ventilation controlled by sensing outdoor air temperature. Nitrogen oxide produced by combustion equipment will also be measured and compared to health guidelines.

**Division:**

Research Division  
Panel on Energy R&D

**Contractor:**

Saskatchewan Research  
Council  
Building Science Division  
15 Innovation Boulevard  
Saskatoon, Saskatchewan  
S7N 2X8

**CIDN:**

1179 0800001  
1179 0200001

**Central Registry:**

6716-17-1

### VENTILATION RESEARCH REPORT

**Objective:**

To carry out support to ventilation standards research: the work shall include four houses.

**Division:**

Research Division  
Panel on Energy R&D

**Contractor:**

Everts-Lind Enterprises  
R.R.#3  
Bridgewater, Nova Scotia  
B4C 2W2

**CIDN:**

0814 0801001

**Central Registry:**

6730-5-7

## WATER CONSERVATION/EAU — CONSERVATION

### Ongoing Projects/Projets en cours

#### **HIGH FREQUENCY WATER SHUT OFF CONTROL**

##### **Objective:**

Develop a working prototype  
of the high frequency water  
shut off control unit.

##### **Division:**

Research Division

##### **Contractor:**

Victor J. Diduck  
755 Kyle Drive  
Kamloops, British Columbia  
V2B 7J5

##### **CIDN:**

1265 0200001

##### **Central Registry:**

6521-18393

### Ongoing Projects/Projets en cours

#### MEASUREMENT OF SPECTRAL TRANSMITTANCE OF REPRESENTATIVE GLAZING SAMPLES

**Objective:**

To obtain the spectral transmittance data of a representative group of window glazings including two-pane and three-pane assemblies with and without low-emissivity coatings; to present the data in a manner that would allow comparisons of the spectral characteristics of the window assemblies.

**Division:**

Research Division

**Contractor:**

University of Calgary  
Centre for Livable  
Communities  
2500 University Drive N.W.  
Calgary, Alberta  
T2N 0G3

**CIDN:**

1214 1100004

**Central Registry:**

6717-18

#### A SURVEY OF HEALTH EFFECTS OF LOW-E WINDOWS

**Objective:**

To determine if there is any existing evidence of a possible health impact of low-e windows on people.

**Division:**

Research Division

**Contractor:**

Murray Waldman  
Suite 1200  
191 Lombard Avenue  
Winnipeg, Manitoba  
R3B 0X1

**CIDN:**

1214 1100002

**Central Registry:**

6717-18

### Ongoing Projects/Projets en cours

#### ATLANTIC WOMEN AND HOUSING; ARE WE PREPARED FOR THE 21ST CENTURY? CONFERENCE JUNE 1994

**Objective:**

The objectives of this conference were to produce innovative housing options which do not involve significant funding; to improve knowledge of and better utilization of existing housing resources; to sensitize government and other public agencies to the housing problems of women and families; to encourage and produce co-ordination and cooperation among organizations in the community interested in the housing problems of women. CMHC will receive a compendium of conference proceedings including summaries of research presentations and workshops conducted.

**Division:**

Strategic Planning and Policy  
Development Division

**Contractor:**

Habitation New Brunswick  
53 Alexander Avenue  
Moncton, New Brunswick  
E1E 1T3

**CIDN:**

1342 010000

**Central Registry:**

0226-1

**PAPER FOR OECD PROJECT  
- WOMEN IN THE CITY****Objective:**

To bring together a group of Canadian experts in a collaborative undertaking to consider OECD's conference proposal and produce a draft Canadian position paper on it.

**Division:**

International Relations  
Division

**Contractor:**

Carleton University  
1125 Colonel By Drive  
Dunton Tower, 15th Floor  
Ottawa, Ontario  
K1S 5B6

**CIDN:**

1075 0900002

**Central Registry:**

4305-4-14



## BIBLIOGRAPHIES/BIBLIOGRAPHIES

- Alternative mortgage instruments / Nouveaux modes de financement hypothécaire  
(Rev. 15 p., October/octobre 1984)
- Architecture in Canada / L'architecture du Canada  
(18 p., July/juillet 1983)
- Building and climatic factors / Construction et des éléments climatiques  
(7 p., November/novembre 1983)
- Building in cold climates / Construction dans les pays froids  
(Rev. 9 p., December/décembre 1989)
- Building laws / Législation de la construction  
(Rev. 25 p., October/octobre 1986)
- Building materials / Matériaux de construction  
(14 p., August/août 1987)
- Building product information / Information sur les produits pour le bâtiment  
(7 p., August/août 1984)
- Children in the urban environment / Les enfants dans le milieu urbain  
(23 p., January/janvier 1993)
- Computer-aided architectural design / Dessins architecturaux par ordinateur  
(Rev. 2 p., September/septembre 1984)
- Condominium conversion / Immeubles d'habitation - transformation en copropriétés  
(12 p., May/mai 1986)
- Condominiums / Copropriétés  
(Rev. 12 p., March/mars 1986)
- Congregate housing / Habitat collectif  
(10 p., November/novembre 1991)
- Construction industry in Canada / Industrie de la construction au Canada  
(Rev. 27 p., January/janvier 1988)
- Construction industry labour / Main-d'oeuvre de la construction  
(6 p., February/février 1988)
- Cooperative housing / Coopératives de logements  
(Rev. 40 p., September/septembre 1988)
- Crime prevention and architectural design / Design architectural et prévention de la criminalité  
(7 p., May/mai 1989)
- Crime prevention and urban safety in residential environments / La prévention du crime et la sécurité dans les milieux résidentiels urbains  
(12 p., September/septembre 1989)
- Deinstitutionalization  
(7 p., June/juin 1988)
- Desktop Publishing  
(3 p., March/mars 1988)
- Development rights transfer / Transfer de droits de développement  
(8 p., December/décembre 1985)

- Discrimination and segregation in housing in Canada / Bibliographie sur la discrimination et la ségrégation dans le logement au Canada  
(5 p., November/novembre 1991)
- Downtown redevelopment / Réaménagement de centres-villes  
(Rev. 26 p., January/janvier 1989)
- Energy conservation in multiple housing / Économie d'énergie dans les logements collectifs  
(Rev. 3 p., June/juin 1983)
- Examples of housing program evaluations / Exemples d'évaluations de programmes de logement  
(3 p., January/janvier 1982)
- Expandable housing / Les logements expansibles  
(October/octobre 1985)
- Experimental houses / Maisons expérimentales  
(6 p., January/janvier 1983)
- External Research Program Reports arranged by subject / Rapports du programme de recherche à l'extérieur par sujet  
(Rev. 31 p., October/octobre 1993)
- False Creek, Vancouver, British Columbia / False Creek, Vancouver, Colombie-Britannique  
(Rev. 4 p., November/novembre 1984)
- Federal/provincial relations and housing / Relations fédérales/provinciales et le logement  
(3 p., June/juin 1987)
- Foundations / Fondations  
(17 p., January/janvier 1989)
- Geodesic domes / Domes géodésiques  
(4 p., November/novembre 1983)
- Graduated payment mortgages / Prêts hypothécaires à paiements progressifs  
(Rev. 3 p., October/octobre 1991)
- Group homes / Foyers de groupe  
(Rev. 5 p., May/mai 1986)
- Halfway houses / Foyers de groupe  
(Rev. 5 p., May/mai 1986)
- Home care vs institutional care / Soins à domicile ou en établissement  
(3 p., April/avril 1982)
- Home equity conversion / Conversion de la valeur nette du logement  
(9 p., October/octobre 1988)
- Home ownership / La propriété d'un logement  
(Rev. 28 p., August/août 1987)
- Homelessness / Sans-logis  
(Rev. 8 p., July/juillet 1987)
- House designs - annotated / Modèles de maisons - annotée  
(12 p., June/juin 1984)
- Housing and AIDS / Hébergement des personnes atteintes du SIDA  
(5 p., September/septembre 1993)
- Housing and services for the disabled / Logement et les services pour les handicapés  
(Rev. 68 p., April/avril 1992)

- Housing and the elderly / Le logement et les personnes âgées  
(Rev. 78 p., September/septembre 1988)
- Housing conversion and residential intensification / Conversion d'habitations et intensification résidentielle  
(Rev. 8 p., October/octobre 1990)
- Housing costs / Prix des maisons  
(12 p., August/août 1985)
- Housing demand / La demande en logement  
(22 p., November/novembre 1986)
- Housing density / Densité d'habitation  
(7 p., September/septembre 1985)
- Housing for immigrants and minorities / Logement pour les groupes ethniques et immigrants  
(7 p., May/mai 1993)
- Housing for single parent families / Le logement et les familles monoparentales  
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- Housing for single people / Le logement et les personnes seules  
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- Housing in Canadian municipalities / Logement dans les municipalités canadiennes  
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- Housing in New Brunswick / Logement au Nouveau-Brunswick  
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- Housing in Nova Scotia / Logement en Nouvelle-Écosse  
(11 p., May/mai 1987)
- Housing in Prince Edward Island / Logement dans l'Île-du-Prince-Édouard  
(4 p., April/avril 1987)
- Housing in the Atlantic Provinces / Logement dans la région de l'Atlantique  
(4 p., April/avril 1987)
- Housing in urban core areas / Logement dans les centres-villes  
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- Housing management / Gestion des logements  
(Rev. 23 p., January/janvier 1989)
- Housing markets / Le marché du logement  
(Rev. 36 p., January/janvier 1988)
- Housing policy in Canada / Politique du logement au Canada  
(Rev. 45 p., January/janvier 1987)
- Housing quality / Qualité de logement  
(8 p., January/janvier 1988)
- Housing renovation / Restauration de quartiers résidentiels  
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- Housing subsidies / Subventions au logement  
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- Housing tenure / Status d'occupation des logements  
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(1 p., January/janvier 1983)
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- Low energy housing / L'habitation à consommation réduite d'énergie  
(8 p., June/juin 1984)
- Manufactured housing / Habitation préfabriquée  
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- Mortgage insurance / L'assurance hypothécaire  
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- Mortgages / Hypothèques  
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- Municipal energy management / Gestion de l'énergie dans les municipalités  
(Rev. 10 p., September/septembre 1983)



- MURBs and RHOSPs / IRLMs et REELs  
(4 p., April/avril 1986)
- Native housing / Logement pour autochtones  
(20 p., January/janvier 1988)
- Neighbourhood improvement programs / Programme d'amélioration des quartiers  
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- Neighbourhood preservation / Conservation du quartier  
(6 p., May/mai 1982)
- Noise / Le bruit  
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- Playgrounds / Terrains de jeux  
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- Privatisation of Public/Council Housing in Great Britain  
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- Public housing in Canada / Habitations à loyer modéré au Canada  
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- Public/Private Partnerships / Association du secteur public et du secteur privé  
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- R-2000 bibliography / Bibliographie sur R-2000  
(7 p., September/septembre 1987)
- Radon and houses / Radon dans les habitations  
(Rev. 23 p., July/juillet 1990)
- Railway relocation / Déplacement de voie ferrée  
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- Real estate in Canada / Propriété immobilière au Canada  
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- Real property appraisal / Évaluation de la propriété immobilière  
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- Rent control / Contrôle des loyers  
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- Rental housing / Logement locatif  
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(6 p., December/décembre 1983)
- Residential development / Développement résidentiel  
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- Residential displacement, relocation, and gentrification / Relogement, relocalisation,  
et embourgeoisement  
(19 p., September/septembre 1988)
- Residential energy conservation / Économies d'énergie dans l'habitation  
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- Residential Rehabilitation Assistance Program / Programme d'aide à la remise en état des  
logements  
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- Retirement and life care communities / Collectivités de retraités et communautés  
fournissant des soins à vie  
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- Secondary mortgage markets / Marchés hypothécaires secondaires  
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- Self-help housing / Autoconstruction  
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- Shared appreciation mortgages / Prêts hypothécaires avec participation à la plus-value  
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- Small houses / Les petites maisons  
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- Smart house / Maison automate  
(Rev. 12 p., December/décembre 1990)
- Solar access rights / Droit au soleil  
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- Solar heating / Chauffage solaire  
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- Solar houses / Maisons solaires  
(Rev. 22 p., October/octobre 1992)

- Stackwall house construction / Construction de maisons de "bois cordé"  
(Rev. 1 p., September/septembre 1983)
- Strategic planning / Planification stratégique  
(8 p., September/septembre 1986)
- Straw bale housing / Maisons de ballots de paille et mortier  
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- Student housing / Logement pour les étudiants  
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- Suburbs / Banlieues  
(Rev. 9 p., September/septembre 1983)
- Technology transfer and the construction industry / Transfert de la technologie dans le secteur de la construction  
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- Temporary shelter for battered women / L'hébergement temporaire pour les femmes victimes de violence  
(Rev. 11 p., May/mai 1991)
- Underground housing / Maisons souterraines  
(Rev. 5 p., March/mars 1985)
- Urban planning in Canada / Urbanisme au Canada  
(25 p., November/novembre 1982)
- User participation in housing design for the elderly / Participation des usagers dans la conception de logements pour personnes âgées  
(Rev. 5 p., June/juin 1984)
- Vacation Homes / Chalets  
(29 p., November/novembre 1991)
- Variable-rate mortgages / Les prêts hypothécaires à taux variable  
(Rev. 9 p., October/octobre 1991)
- Ventilation / Ventilation  
(Rev. 26 p., September/septembre 1991)
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- Women and housing / Les femmes et le logement  
(15 p., April/avril 1991)
- Wood construction / Construction en bois  
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- Wraparound mortgages / Les prêts hypothécaires intégrant  
(2 p., January/janvier 1983)
- Zoning in Canada / Zonage au Canada  
(5 p., December/décembre 1983)

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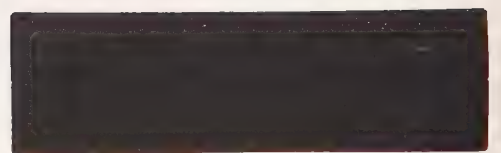
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## INTRODUCTION/INTRODUCTION

Under Part IX of the National Housing Act the Government of Canada provides funds to Canada Mortgage and Housing Corporation to conduct research into the social, economic and technical aspects of housing and related fields.

*Housing Research* is compiled and produced on a quarterly basis by the Canadian Housing Information Centre. This publication provides information and access to research which is undertaken and sponsored by the Corporation.

The publication contains information on completed research reports, new publications, videos and bibliographies, as well as ongoing research projects. An alphabetical title index of items listed is included at the end for quick reference.

"Ongoing Projects" refer to research projects which are currently underway. No reports are yet available. Once the project is completed, and a report is available for distribution, it will be listed in *Housing Research* under the "Completed Reports" area with a full bibliographic citation and abstract. The "Ongoing Projects" sections of *Housing Research* contain the following information:

### **Title:**

Title of the project, which may not necessarily be the same as the final report.

### **Objective:**

Gives a brief description of the project.

### **Division:**

Division within CMHC which is managing the project.

### **Contractor:**

Individual or firm undertaking the research.

### **CIDN:**

Contract Identification Number.

### **Central Registry:**

File number to be used to store correspondence between CMHC and the contractor.

En vertu de la Partie IX de la loi nationale sur l'habitation le gouvernement du Canada fournit des fonds à la Société canadienne d'hypothèques et de logement pour la recherche sur les aspects sociaux, économiques et techniques du logement et des domaines connexes.

*Recherche en logement* est produit chaque trimestre par le Centre canadien de documentation sur l'habitation. Il contient des renseignements sur la recherche entreprise et subventionnée par la Société.

La publication présente des renseignements sur les rapports de recherche, les nouvelles publications, les vidéos et les bibliographies, ainsi que sur les projets de recherche en cours. Une liste alphabétique par titres, facile à consulter, se trouve à la fin de l'ouvrage.

Tous les projets non terminés, n'ayant pas encore fait l'objet d'un rapport sont des «projets en cours». Une fois qu'il sera terminé, publié et disponible, le rapport figurera dans la publication *Recherche en logement* sous la rubrique «Rapports terminés» avec références bibliographiques et sommaire. Les sections «Projets en cours» de *Recherche en logement* contiennent les renseignements suivants :

### **Titre :**

Titre du projet, qui n'est pas nécessairement le même que celui du rapport final.

### **Objectif :**

Brève description du projet.

### **Division :**

Division de la SCHL chargée de gérer le projet.

### **Contractant :**

Personne ou firme chargée de la recherche.

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### DEGRADATION OF WOOD STUD WALL SOUND INSULATION BY ELECTRICAL OUTLETS.

*Prepared by T.R. Nightingale, National Research Council Canada, Institute for Research in Construction. Prepared for Housing Innovation Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1993.*

It is widely accepted that the presence of electrical outlets in party walls can degrade the fire resistance and sound insulation. Most textbooks and building practice guides state that outlet boxes should not be placed back-to-back or even in the same stud cavity. However, systematic studies of the factors affecting either the sound transmission loss or fire resistance have not been reported. This study attempts to resolve the lack of information for sound transmission loss.

The study comes to the following conclusions:

- Boxes that incorporate built-in gaskets that seal to the gypsum board surfaces and to the wires offer superior sound insulation to standard metal boxes. Walls with plastic boxes gave sound insulation nearly identical to that without outlets.
- Standard metal electrical boxes may cause significant reduction of the STC. The effect depends on the combination of distance between the boxes and presence of intervening obstacles such as absorptive material and studs.
- Baffles are effective only if the cavity contains absorption.

In a case where poorly placed electrical boxes are compromising the sound insulation of a party wall, either of the following retrofits is recommended:

- Caulk the gap between the box and the gypsum board and place an insert in the box; or
- Line the interior of the box with mass-loaded material and extend it to fill the gap between the box and the gypsum board.

A draft stopper is easily installed, but the resulting improvement in sound insulation is variable.

### Ongoing Projects/Projets en cours

#### MODELLING OF ROAD NOISE AND OPTIMAL BARRIER DESIGN

##### Objective:

This study will apply the newly developed modelling tools to the prediction of road noise attenuation utilizing barriers and berms.

##### Division:

Research Division  
External Research Program

##### Contractor:

Dr. Ken R. Fyfe  
Department of Mechanical Engineering  
University of Alberta  
Edmonton, Alberta  
T6G 2G8

##### CIDN:

1086 0200001

##### Central Registry:

6585/F039

## Completed Reports/Rapports terminés

### **ADOPTION DU CODE NATIONAL DU BÂTIMENT À L'ÎLE-DU-PRINCE-ÉDOUARD : ÉTUDE DE CAS = ADOPTION OF THE NATIONAL BUILDING CODE IN PRINCE EDWARD ISLAND: CASE STUDY.**

*Abordabilité et choix toujours (A.C.T.) projet de simplification du processus d'approbation / Association de la construction de l'Île-du-Prince-Édouard, Charlottetown (Île-du-Prince-Édouard). Préparé par Energy Pathways Inc. Préparé pour la Fédération canadienne des municipalités, l'Association canadienne des constructeurs d'habitations, l'Association canadienne d'habitation et de rénovation urbaine et la Société canadienne d'hypothèques et de logement. Ottawa : Les Associations : La Fédération : La Société, 1994.*

En 1992, L'Association de la construction de l'Î.-P.-É. (CAPEI) - Secteur de la construction résidentielle a formé un comité directeur chargé de déterminer la faisabilité d'adopter le Code national du bâtiment (CNB) et d'en appuyer l'adoption. À l'automne 1992, la CAPEI s'est vu attribuer une subvention dans le cadre de l'A.C.T. en vue d'entreprendre une étude exhaustive des avantages, des inconvénients et des frais connexes à l'adoption du CNB, à l'Î.-P.-É.

Lors de cette étude, on a constaté que l'absence d'un code du bâtiment à l'Î.-P.-É. privait de protection un nombre important de propriétaires, résultait en des vices de construction et pouvait fausser le processus de soumissions en donnant un avantage injuste aux constructeurs qui ne se conforment pas au CNB. En décembre 1993, la CAPEI a officiellement présenté au gouvernement provincial son rapport définitif accompagné de lettres d'appui préparées par d'autres organismes favorables à l'adoption du CNB. Cette étude de cas décrit les efforts de la CAPEI afin d'encourager le gouvernement provincial à réexaminer sa position relativement à l'adoption du CNB.

NOTE: Bilingue/bilingual.

### **ADOPTION OF THE NATIONAL BUILDING CODE IN PRINCE EDWARD ISLAND: CASE STUDY = ADOPTION DU CODE NATIONAL DU BÂTIMENT À L'ÎLE-DU-PRINCE-ÉDOUARD : ÉTUDE DE CAS.**

*Affordability and Choice Today (A.C.T.) Streamlined Approval Process Project / Construction Association of Prince Edward Island, Charlottetown, Prince Edward Island. Prepared by Energy Pathways Inc. Prepared for the Federation of Canadian Municipalities, Canadian Home Builders' Association, Canadian Housing and Renewal Association and Canada Mortgage and Housing Corporation. Ottawa: The Associations: The Federation: The Corporation, 1994.*

In 1992, the Home Builders' Sector of the Construction Association of P.E.I. (CAPEI) formed a steering committee to determine the feasibility of adopting the National Building Code (NBC) and to secure support for its adoption. In the fall of 1992, CAPEI was awarded an A.C.T. grant to undertake a comprehensive study of the advantages, disadvantages and costs associated with adopting the NBC in PEI.



The study found that the absence of a building code in P.E.I. leaves a significant number of homeowners unprotected, leads to a number of building defects, and can give an unfair advantage in the bidding process to builders that do not apply the NBC. In December 1993, CAPEI formally presented the final report to the provincial government, along with letters of support from other organizations that support the adoption of the NBC. This case study documents the efforts of CAPEI to encourage the provincial government to adopt the NBC.

NOTE: Bilingual/bilingue.

**EXPERT SYSTEMS: THE FUTURE OF PLAN-CHECKING: CASE STUDY - FINAL REPORT = SYSTÈMES EXPERTS : L'AVENIR DE LA VÉRIFICATION DES PLANS : ÉTUDE DE CAS - RAPPORT FINAL.**

*Affordability and Choice Today (A.C.T.) Streamlined Approval Process Project. Prepared by Energy Pathways Inc. Prepared for the Federation of Canadian Municipalities, Canadian Home Builders' Association, Canadian Housing and Renewal Association and Canada Mortgage and Housing Corporation. Ottawa: The Associations: The Federation: The Corporation, 1992.*

In 1990, EB Economics developed an expert system to automate the spatial separation section of the plan-checking process. City of Vancouver officials provided in-depth building by-law information and participated with consultants to develop the expert system knowledge base. The City also agreed to act as a test site for the project.

In 1991, an evaluation of the potential for professionals other than plan-checkers to use the expert system was completed. The purpose of the evaluation was to determine the benefits of the system to architects, designers, building inspectors, and municipal planners. As part of the evaluation, three seminars were held; these included presentations, demonstrations, discussions, and an evaluation questionnaire. The evaluation results showed that an expert system has excellent potential for automated plan-checking for various users. Speed, consistency, accuracy, and user confidence in computerized plan-checking were all found to be superior to the manual process.

Discussions are underway between EB Economics and the City of Vancouver to enhance the spatial separation expert system and to develop systems for four more of the 14 building-code plan checking sections. The potential also exists to adapt this system to the specific needs of other cities across Canada.

NOTE: Bilingual/bilingue.

**SYSTÈMES EXPERTS : L'AVENIR DE LA VÉRIFICATION DES PLANS : ÉTUDE DE CAS - RAPPORT FINAL = EXPERT SYSTEMS: THE FUTURE OF PLAN-CHECKING: CASE STUDY - FINAL REPORT.**

*Abordabilité et choix toujours (A.C.T.) projet de mécanisme rationalisé d'approbation. Préparé par Energy Pathways Inc. Préparé pour la Fédération canadienne des municipalités, l'Association canadienne des constructeurs d'habitations, l'Association canadienne d'habitation et de rénovation urbaine et la Société canadienne d'hypothèques et de logement. Ottawa : Les Associations : La Fédération : La Société, 1992.*

EB Economics a élaboré en 1990 un système expert qui automatisait la partie de séparation spatiale du mécanisme de vérification des plans. Les responsables de la Ville de Vancouver ont contribué, en collaboration avec les experts-conseils, à réunir les connaissances de base nécessaires à l'élaboration du système expert, notamment en fournissant des renseignements détaillés relatifs aux règlements municipaux en matière de construction. La Ville a également accepté que le projet soit mis à l'essai dans sa juridiction.

## BUILDING CODES/CODES DU BÂTIMENT

En 1991, une évaluation des possibilités d'utilisation du système expert par d'autres professionnels que les vérificateurs de plans a été terminée. Cette évaluation avait pour but de cerner les avantages que procure le système aux architectes, aux concepteurs, aux inspecteurs de la construction et aux planificateurs urbains. Trois colloques ont été organisés dans le cadre de cette évaluation. Ils incluaient des présentations, des démonstrations, des discussions et un questionnaire d'évaluation.

Les résultats de l'évaluation ont démontré qu'un système expert présentait un excellent potentiel de vérification automatisée des plans de la part de divers utilisateurs. Par rapport au procédé manuel, la vitesse, la cohérence, l'exactitude et la confiance des utilisateurs dans le système automatisé de vérification des plans se sont avérées meilleures.

EB Economics et la Ville de Vancouver négocient actuellement en vue d'améliorer le système expert de séparation spatiale et d'élaborer des systèmes pour 4 des 14 volets de vérification des plans du code de la construction. On pourra aussi adapter ce système aux besoins particuliers des autres villes canadiennes.

NOTE: Bilingue/bilingual.



#### FIELD TEST OF IMPROVED WALLS

**Objective:**

To carry out monitoring on a highrise residential building in Ottawa to assess performance of the brick veneer/steel stud envelope.

**Division:**

Housing Innovation Division

**Contractor:**

Keller Engineering Associates Inc.  
1390 Prince of Wales Drive  
Ottawa, Ontario  
K2C 3N6

**CIDN:**

0411 0301001  
0411 0302001  
0411 0303001

**Central Registry:**

6796-3-6

#### PREPARATION OF BEST PRACTICE GUIDE FOR FLASHING DETAILS, MASONRY VENEER/ CONCRETE BLOCK CONSTRUCTION AND WOODFRAME CONSTRUCTION

**Objective:**

To prepare three guides on building envelope design:  
1) a 'best practice' guide for concrete block exterior wall construction; 2) a 'best practice' guide for various exterior wall assemblies with wood frame construction; 3) a 'best practice' guide for the flashing of wood, concrete and steel frame building envelopes. The documents will contain details, specifications, sequence of construction and information on inspection and commissioning.

**Division:**

Housing Innovation Division

**Contractor:**

Robert Halsall & Associates/Otto & Bryden Arch.  
210 Gladstone Avenue  
Ottawa, Ontario  
K2P 0Y6

**CIDN:**

0974 0300001

**Central Registry:**

6503-15

#### PREPARE A BEST PRACTICE GUIDE FOR MASONRY VENEER/STEEL STUD EXTERIOR WALL CONSTRUCTION

**Objective:**

To prepare a best practice guide for steel stud exterior wall construction: collect and review recent publications, solicit suggestions for additional material to review from authors of known publications and from manufacturers of steel studs.

**Division:**

Housing Innovation Division

**Contractor:**

Posey Construction Specifications  
P.O. Box 1756  
Station M  
Calgary, Alberta  
T2P 2L8

**CIDN:**

0839 0300001

**Central Registry:**

6503-24

#### RAIN CONTROL AND WIND DRIVEN RAIN

**Objective:**

To carry out work aimed at producing guidelines for the testing and commissioning of pressure equalized rainscreen walls.

**Division:**

Housing Innovation Division

**Contractor:**

Quirouette Building Envelope Specialists  
18 Crispin Private  
Ottawa, Ontario  
K1K 2T8

**CIDN:**

1123 0304002  
1123 0300004

**Central Registry:**

6793-21-5

### TESTING OF REINFORCED OR PRE-STRESSED BRICK VENEER WALL SYSTEMS USING A BRICK VENEER WALL SYSTEM

**Objective:**

To demonstrate the feasibility and potential for reinforced or pre-stressed brick veneer wall systems, and to identify further research and development needs including laboratory investigations, design details, and construction guidelines.

**Division:**

Research Division  
Housing Technology  
Incentives Program

**Contractor:**

Canada Brick  
2121 Britannia Road West  
Box 668  
Streetsville, Ontario  
L5M 2C3

**CIDN:**

1177 0200001

**Central Registry:**

6521-7-93

### ZERO-CAVITY, PRESSURE EQUALIZED RAINSCREEN WALL SYSTEM

**Objective:**

To investigate the performance of the zero-cavity, pressure equalized rainscreen wall system. To investigate the consequences of completely filling the air space behind brick cladding with a fibrous, draining insulation to answer the following questions: can masons build this wall, will the insulation drain, will the cavity pressure equalize, will the brick become too warm or too cold, and will the water reach the sheathing by capillary action?

**Division:**

Housing Innovation Division

**Contractor:**

University of Waterloo  
Building Engineering Group  
Civil Engineering Department  
Waterloo, Ontario  
N2L 3G1

**CIDN:**

0689 0300001

**Central Registry:**

6793-21-1

### DEVELOPMENT OF A NEW EDITION OF THE STANDARD FOR CONCRETE CONSTRUCTION FOR HOUSING AND SMALL BUILDINGS (CSA A438)

**Objective:**

To carry out the development of a new edition of the standard for concrete construction for housing and small buildings (CSA A438).

**Division:**

Research Division

**Contractor:**

Canadian Standard  
Association  
178 Rexdale Boulevard  
Toronto, Ontario  
M9W 1R3

**IDN:**

1259 0200001

**Central Registry:**

5610-37

### DURABILITY OF FIBRE-REINFORCED PLASTIC (FRP) REBARS IN CONCRETE STRUCTURES

**Objective:**

Scientific research and development concerning the durability of fibre-reinforced plastic (FRP) rebars in concrete structures.

**Division:**

Research Division

**Contractor:**

National Research Council  
1200 Montreal Road  
Ottawa, Ontario  
K1A 0R6

**CIDN:**

1172 0200001

**Central Registry:**

6711-10

### ELECTRICAL COMPATIBILITY OF STRUCTURAL INFILL CONCRETE AND MORTARS USED IN PATCHING OF FLAT SLAB CONCRETE

**Objective:**

To study the compatibility of structural infill concrete and mortars used in the patching of flat slab concrete.

**Division:**

Research Division

**Contractor:**

National Research Council  
Institute for Research in  
Construction  
Montreal Road  
Ottawa, Ontario

**CIDN:**

1366 0200001

**Central Registry:**

6711-11

### A COMPARISON OF RESIDENT AND NONRESIDENT CONDOMINIUM OWNERS IN THE CITY OF TORONTO.

*Prepared by Valerie A. Preston, Robert A. Murdie, David A. Northrup, York University, Institute for Social Research. Prepared under the External Research Program, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1993, i.e. 1994.*

Resident and nonresident owners of condominiums in the city of Toronto are compared to determine whether the social characteristics, condominiums, and purchase decisions of investors differ from those of owner occupants. A random sample of owners of condominiums registered in Toronto between 1985 and 1989 was interviewed by a telephone survey. Data about each owner's social, economic, and demographic characteristics, attributes of the condominium development and unit, purchase decision, and the current costs of condominium ownership were elicited from 86 resident and 84 nonresident owners.

The empirical findings indicate that resident and nonresident owners are better off than the average resident of Toronto. Contrary to public preconceptions, the ethnic backgrounds of both groups of owners are diverse. Recent immigrants are found among resident and nonresident owners, although well established immigrant groups are more likely to be nonresident owners.

Investors buy similar condominiums as owner occupants. Only dates of purchase and sizes of condominiums bought by resident and nonresident owners differed. Nonresident owners tended to buy sooner than resident owners who increased their share of purchases between 1985 and 1989. Resident owners were also more likely to buy large, two-bedroom units than nonresident owners who concentrated on studios and one-bedroom apartments.

As expected, nonresident owners placed more importance upon investment considerations when deciding upon a condominium form of tenure and selecting a specific unit. Reasonable price and protection against inflation were assigned importance by nonresident owners, whereas resident owners placed more weight upon the low maintenance and convenience of condominium living.

Finally, investors in the condominium market in central Toronto are interested in long-term gains from small-scale investments. The majority do not expect to sell within the next two years, despite their current financial losses. Approximately 79 percent of nonresident owners reported that rents did not cover monthly carrying costs.



### **INTRODUCTION À L'ÉVALUATION ENVIRONNEMENTALE DES SITES (LNH 6788).**

*Ottawa : Société canadienne d'hypothèques et de logement, 1994.*

La contamination du sol et des eaux souterraines est un sujet de préoccupation croissante pour un grand nombre de Canadiens. Une solution à ce problème consiste, bien sûr, à éliminer tout nouveau risque de contamination des sites. Mais, compte tenu du nombre croissant de sites déjà contaminés qui sont identifiés chaque jour, la prévention ne suffit pas. Pour décider des mesures correctives à prendre, il faut d'abord identifier et évaluer les problèmes de contamination existants. Une procédure, appelée Évaluation environnementale des sites (EES), a donc été mise au point pour détecter les problèmes de contamination des sites. Une EES permet d'évaluer les risques associés à un site particulier, et de prendre une décision informée sur les mesures correctives qui s'imposent.

Ce document, qui s'adresse aux représentants, aux organismes et aux particuliers qui oeuvrent dans le secteur de l'immobilier, décrit en quoi consiste l'évaluation environnementale des sites, sa raison d'être et les différents éléments qui la composent. Il décrit également plus en détail les étapes à suivre pour la réalisation de la phase I d'une EES.

**NOTE:** Also available in English under the title: *An Introduction to Environmental Assessments (NHA 6787).*

### **AN INTRODUCTION TO ENVIRONMENTAL SITE ASSESSMENTS (NHA 6787).**

*Ottawa: Canada Mortgage and Housing Corporation, 1994.*

Canadians are concerned about contamination of soil and groundwater. Part of the solution to the problem is to ensure that contamination does not occur in the first place. However, given our large and growing inventory of contaminated sites, prevention is not enough. Existing contamination must first be identified so that decisions can be made about possible solutions. An evaluation procedure known as an environmental site assessment (ESA) is one method for detecting contamination. ESAs estimate the environmental risks associated with particular sites and allow informed decisions to be made.

This booklet, which is addressed to officials, organizations and individuals involved in all aspects of real estate transactions, introduces ESAs, discusses why they are useful, and describes how they should be carried out. Additional details about the first phase of an ESA are also provided.

**NOTE:** Aussi disponible en français sous le titre : *Introduction à l'évaluation environnementale des sites (LNH 6788).*



## CONTAMINATED LANDS/TERRAINS CONTAMINÉS

### **REVIEW AND COMPARISON OF: A PROTOCOL FOR THE DERIVATION OF ECOLOGICAL EFFECTS-BASED AND HUMAN HEALTH-BASED SOIL QUALITY CRITERIA FOR CONTAMINATED SITES (JULY 1993) AND A RATIONALE FOR THE DEVELOPMENT OF SOIL, DRINKING WATER, AND AIR QUALITY CRITERIA FOR LEAD (OCTOBER 1993) INCLUDING REFERENCE TO SCIENTIFIC CRITERIA DOCUMENT FOR MULTI-MEDIA ENVIRONMENTAL STANDARDS DEVELOPMENT (MARCH 1994).**

*Prepared by Adamas Environmental Inc. and Anacapa Consulting Services. Prepared for Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.*

Two documents dealing with clean-up standards for contaminated sites were issued for comment.

- a) A generic protocol for deriving soil quality criteria, issued by the Subcommittee on Environmental Quality Criteria for Contaminated Sites - Canadian Council of Ministers of the Environment (CCME).
- b) A proposed quality criterion for lead in Ontario soils, issued by the Advisory Committee on Environmental Standards - Ontario Ministry of the Environment and Energy (MOEE).

This review critiques each of the consultation documents from the perspective of the housing sector, with a special emphasis on soils in urban centres. For each document, the review summarizes the rationale in layperson's terms, identifies the relative strengths of the arguments of which it is comprised and identifies the limitations of each document. The review goes on to assess the rationale and the limitations for appropriateness from the viewpoint of the housing sector. Finally, the report compares derivation methods contained in the documents.

The major difference between the two documents in terms of derivation methodology, is that the CCME protocol uses an approach based on risks to human health and ecology, while the lead rationale is based solely on health concerns. In terms of the application of the criteria, it appears that the Ontario lead rationale will be more restrictive vis-à-vis housing development.

**DEVELOPMENT OF  
TRAINING & CERTIFICATES  
PROGRAM FOR AESAC,  
THE ASSOCIATION OF  
ENVIRONMENTAL SITE  
ASSESSORS OF CANADA**

**Objective:**

To identify education, skills, knowledge and experience required, and certification and training procedures needed to meet the requirements of institutional lenders, insurers, large property managers, and others.

**Division:**

Research Division

**Contractor:**

AESAC  
1 Sparks Avenue  
Willowdale, Ontario  
M2H 2W1

**CIDN:**

1319 0200001

**Central Registry:**

6755-4-2

**FIELD TESTS OF REMEDIAL  
MEASURES FOR HOUSES  
AFFECTED BY HAZARDOUS  
LANDS**

**Objective:**

To monitor the effectiveness of remedial measures installed in houses across Canada to prevent hazardous soil gases from entering house air.

**Division:**

Research Division

**Contractor:**

CH2M Hill Engineering Ltd.  
180 King Street South  
Suite 600  
Waterloo, Ontario  
N2J 1P8

**CIDN:**

0820 0200001

**Central Registry:**

6719-19

# COOPERATIVE AND NON-PROFIT HOUSING/ LOGEMENT SANS BUT LUCRATIF ET COOPÉRATIVES

## Ongoing Projects/Projets en cours

### ÉVALUATION DU PROGRAMME PLACEMENT - HABITAT

#### Objet :

Évaluation du programme placement - Habitat retenu aux termes du Programme de subventions de recherche de la SCHL - 1992.

#### Division :

Division de la recherche  
Programme de subventions de recherche

#### Contractant :

Robert Chagnon et associés  
4209, avenue Oxford  
Montréal (Québec)  
H4A 2Y5

#### NIC :

1085 0200001

#### Numéro de la gestion des documents :

6585-C066

### PERTINENCE ET FAISABILITÉ DE LA FORMULE COOPÉRATIVE D'HABITATION - ÉQUITÉ

#### Objet :

Le projet de recherche porte sur la conception et la mise en oeuvre d'un programme d'auto-développement pour le secteur coopératif en habitation.

#### Division :

Division de la recherche  
Programme de subventions de recherche

#### Contractant :

Madame Marie J. Bouchard  
Centre de gestion des coopératives  
333, chemin de la Reine-Marie, local 640  
Montréal (Québec)  
H3V 1A2

#### NIC :

1084 0200001

#### Numéro de la gestion des documents :

6585-B090-1

### POUR UNE MISE EN MARCHÉ EFFICIENTE DES COOPÉRATIVES D'HABITATION AVEC INVESTISSEMENT DES MEMBRES

#### Objet :

Évaluer le(s) produit(s) d'habitation coopérative dans une perspective marketing, mais aussi, élaborer une méthodologie de lancement de ces nouveaux concepts.

#### Division :

Division de la recherche  
Programme de subventions de recherche

#### Contractant :

Monsieur Guy Ara  
Faculté d'administration  
Université de Sherbrooke  
Sherbrooke (Québec)  
J1K 2R1

#### NIC :

0907 0200001

#### Numéro de la gestion des documents :

6585-A39

### **BARRIER-FREE AND AUTOMATED DEMONSTRATION HOUSE**

#### **Objective:**

To carry out the design, construction and display of a "barrier-free and automated demonstration house" including production of video material, commentary, and report.

#### **Division:**

Research Division

#### **Contractor:**

Adaptable Housing Ltd.  
#4 - 5839 Vine Street  
Vancouver, British Columbia  
V6M 4A2

#### **IDN:**

1229 110001

#### **Central Registry:**

6535-17-2

### **BARRIER-FREE ENTRANCE DOOR LOCK**

#### **Objective:**

To develop a design for a product "a barrier-free entrance door lock" that will be easy to retro-fit in standard existing doors and be very easy for persons with limited hand strength or dexterity to operate.

#### **Division:**

Research Division  
Housing Technology  
Incentives Program

#### **Contractor:**

RBO Architecture  
#1 - 730 West 7th Avenue  
Vancouver, British Columbia  
V5Z 1B8

#### **IDN:**

1225 0200001

#### **Central Registry:**

6521-26/93

### **CRITÈRES DE PERFORMANCE EN ACCESSIBILITÉ UNIVERSELLE ET IMPLICATION ÉCONOMIQUE**

#### **Objet :**

Porte sur le logement accessible et adaptable et plus particulièrement sur une version économiquement réalisable de l'accessibilité universelle.

#### **Division :**

Division de la recherche  
Programme de subventions  
de recherche

#### **Contractant :**

Madame Sophie Lanctôt  
Société d'habitation  
communautaires logique inc.  
3250, boul. St-Joseph est  
Montréal (Québec)  
H1Y 3G2

#### **NIC :**

1092 0200001

#### **Numéro de la gestion des documents :**

6585-L052-1

### **AN EXPLORATION OF DESIRABILITY OF HOUSING LOCATION BY CONSUMERS OF PSYCHIATRIC SERVICES**

#### **Objective:**

To conduct a focus group comprised of tenants from three types of housing, to conduct 60 semi-structured interviews with tenants in the three aforementioned housing settings.

#### **Division:**

Research Division  
External Research Program

#### **Contractor:**

Ms. Katherine M. Boydell  
Queen Street Mental Health  
Centre  
1001 Queen Street West  
Toronto, Ontario  
M6J 1H4

#### **CIDN:**

1272 0200001

#### **Central Registry:**

6585-B104

### **FEASIBILITY OF DISABILITY-INTEGRATED, UNIVERSALLY DESIGNED INFILL CO-HOUSING IN AN URBAN SETTING**

#### **Objective:**

To create a document which includes: a model of typical infill co-housing based on current literature and post-occupancy evaluation of existing co-housing developments and their residents, etc.

#### **Division:**

Research Division  
External Research Program

#### **Contractor:**

Mr. David Wetherow  
Executive Director  
Association for Community  
Living  
1706 - 90 Garry Street  
Winnipeg, Manitoba  
R3C 4J4

#### **CIDN:**

1101 0200001

#### **Central Registry:**

6585-W018-1



### FOCUS GROUP SESSIONS TO EXAMINE BARRIER-FREE AND ADAPTABLE HOUSING DESIGNS

**Objective:**

To obtain the views of older adults, seniors, and adults with various types of disabilities in all age categories, on their levels of interest, needs and preferences relating to barrier-free and adaptable housing.

**Division:**

Research Division

**Contractor:**

Hickling Corporation  
350 Sparks Street  
6th Floor  
Ottawa, Ontario  
K1R 7S8

**CIDN:**

1000 1100002

**Central Registry:**

6535-13

### UN GUIDE ILLUSTRÉ DE CARACTÉRISTIQUES DE CONCEPTION FAVORISANT L'ACCESSIBILITÉ

**Objet :**

De produire un guide illustré de caractéristiques de conception favorisant l'accessibilité, qui soient adaptables et efficaces par rapport aux coûts tout en pouvant être intégrées dans divers types d'habitations.

**Division :**

Division de la recherche

**Contractant:**

Société logique inc.  
3250, boulevard St-Joseph est  
Montréal (Québec)  
H1Y 3G2

**NIC :**

1240 1100001

**Numéro de la gestion des documents :**

6535-17-1

### HOUSING NEEDS OF PEOPLE WITH DISABILITIES

**Objective:**

To provide a profile of the housing characteristics and needs of people with disabilities using data from the 1991 Census and post-censal Health and Activity Limitations Survey (HALS).

**Division:**

Research Division

**Contractor:**

ARK Research Associates  
165 Hinton Avenue North  
Ottawa, Ontario  
K1Y 0Z9

**CIDN:**

1045 0200003

**Central Registry:**

6620-2

### HOUSING PEOPLE WITH DISABILITIES

**Objective:**

Updating of the NHA publications #5467 and 5468: Housing Disabled Persons.

**Division:**

Research Division

**Contractor:**

Associated Planning  
Consultants Inc.  
191 Eglinton Avenue East  
Suite 303  
Toronto, Ontario  
M4P 1K1

**CIDN:**

1298 0200001

**Central Registry:**

6530-35

### STUDY OF HOME ADAPTATIONS CARRIED OUT UNDER THE HASI AND RRAP-D PROGRAMS

**Objective:**

To determine the range and types of adaptations that are being carried out by various client groups under both programs; assess the effectiveness of the various adaptations in helping people in their daily lives; assess the relative importance of the various types of adaptations in helping people to continue to live in their own homes; determine the costs associated with different types of adaptations; and identify problems or benefits associated with alternative ways of undertaking the work.

**Division:**

Research Division

**Contractor:**

Social Data Research Limited  
Suite 750  
130 Slater Street  
Ottawa, Ontario  
K1P 6E2

**CIDN:**

1128 1100001

**Central Registry:**

6600-1



### ADAPTING MUNICIPAL HOUSING FOR DEMENTIA

#### Objective:

To contribute to an understanding of what housing providers can do to help residents with dementia age in place.

#### Division:

Research Division  
External Research Program

#### Contractor:

Myra Schiff  
213 - 110 Richmond Street  
East  
Toronto, Ontario  
M5C 2P9

#### CIDN:

1286 0200001

#### Central Registry:

6585-S076-1

### THE CHINESE ELDERLY: SOCIAL INTEGRATION IN METRO HOUSING

#### Objective:

A study to ask the ethnic elderly through interviews how they are dealing with their communication needs in an attempt to ascertain the level of congruence between the services being offered and the ethnic composition of the buildings under study.

#### Division:

Research Division  
External Research Program

#### Contractor:

Dr. Morris Saldov  
Ginto Consulting and Research  
2 Kensington Avenue  
Toronto, Ontario  
M5T 2J7

#### CIDN:

1285 0200001

#### Central Registry:

6585-S042-5

### COLLOQUE INTERNATIONAL : NOUVELLES SOLUTIONS SOCIALES, ÉCONOMIQUES, TECHNOLOGIQUES ET CULTURELLES POUR NOS SOCIÉTÉS VIEILLISSANTES

#### Objet :

Ce colloque vise à faire reconnaître l'importance d'examiner les effets du vieillissement de la population dans différents secteurs de la vie collective afin que les solutions appropriées permettant de faire face aux changements que le phénomène entraîne puissent être apportées.

#### Division :

Division de la recherche

#### Contractant :

Inst. Universitaire du troisième âge de Montréal  
1474, rue Fleury est  
Montréal (Québec)  
H2C 1S1

#### NIC :

1381 0200001

#### Numéro de la gestion des documents :

6525-12

### COMPUTERIZED SET OF TOOLS THAT WILL ASSIST IN DEVELOPING PROFILES OF THE NEEDS AND PREFERENCES OF SENIORS IN RURAL AREAS

#### Objective:

Design, develop, test and produce a computerized set of tools that can be used by local organizations and agencies to identify the

current and future housing and service needs of their senior population and evaluate the options for meeting these needs.

#### Division:

Research Division

#### Contractor:

Tetrad Computer Applications Limited  
1445 West Georgia Street  
Vancouver, British Columbia  
V6G 2T3

#### CIDN:

0528 0200001

#### Central Registry:

6530-25

### DEPLOYMENT AND CONTROL OF GARDEN SUITES

#### Objective:

To produce a guide document which deals comprehensively with issues faced by municipalities, suppliers, host families and occupants, in the deployment and use of Garden Suites, and provide practical examples of approaches and tools which can address these issues.

#### Division:

Research Division

#### Contractor:

Allen E. Brass Associates Inc.  
8 Burnside Drive  
Toronto, Ontario  
M6G 2M8

#### CIDN:

1120 0200001

#### Central Registry:

6530-5

### **DEVELOPMENT AND IMPLEMENTATION OF A COMMUNICATION PLAN FOR THE SENIORS RENOVATION ADVISORY NETWORK'S SERVICE**

**Objective:**

To raise awareness in the Fredericton area of the Seniors Renovation Advisory Network to ensure that seniors fully utilize the service.

**Division:**

Atlantic Region

**Contractor:**

Bissett Matheson  
Communications  
31 William Street  
Fredericton, New Brunswick  
E3A 4V7

**CIDN:**

0883 1351001

**Central Registry:**

6530-37

### **THE GRAYING OF CANADIAN SUBURBS: PATTERNS, PACE AND PROSPECTS**

**Objective:**

To carry out a research project entitled the graying of Canadian suburbs: patterns, pace and prospects and to develop a statistical perspective on the degree and pace of aging of the population living in the suburban sector of Canada's metropolitan areas over the period 1971-1991.

**Division:**

Research Division  
External Research Program

**Contractor:**

Dr. Gerald J.F. Hodge  
Coplan Consultants  
427 East 10th Street  
North Vancouver  
British Columbia  
V7L 2E5

**CIDN:**

0914 0200001

**Central Registry:**

6585-H3-5

### **A GUIDE TO PLANNING, DESIGNING, DEVELOPING, MARKETING AND MANAGING HOUSING FOR OLDER CANADIANS**

**Objective:**

To produce an easy to follow and practical guide document that will assist both non-profit groups and the private sector in planning, designing, developing, marketing and managing a wide range of housing choices for older Canadians.

**Division:**

Research Division

**Contractor:**

Baycrest Centre for Geriatric Care  
3560 Bathurst Street  
North York, Ontario  
M6A 2E1

**CIDN:**

0869 0200001

**Central Registry:**

6530-1

### **HELPING SENIORS AND PEOPLE WITH DISABILITIES MAINTAIN THEIR INDEPENDENCE AT HOME: A GUIDE TO DELIVERING HOME ADAPTATIONS**

**Objective:**

To produce a how-to guide document which will identify and describe the steps and resources involved in planning, designing, implementing, managing and marketing a variety of different approaches to delivering home adaptations for seniors and persons with disabilities.

**Division:**

Research Division

**Contractor:**

University of Manitoba  
Administration Building  
Room 202  
Winnipeg, Manitoba  
R3T 2N2

**CIDN:**

1256 0200001  
1256 1100001

**Central Registry:**

6530-42

**NATIONAL SENIORS'  
SAFETY WEEK HOME  
ADAPTATIONS CAMPAIGN**

**Objective:**

Contribution to bring information on home adaptations to seniors and those who can help them make and carry out home adaptation choices through development and distribution of a 12-page activity and resource guide for local health and service organizations who work with seniors, and a home assessment information pamphlet for seniors and their families.

**Division:**

Housing Innovation Division  
Research Division

**Contractor:**

Canada Safety Council  
6-2750 Stevenage Drive  
Ottawa, Ontario  
K1G 3N2

**CIDN:**

1360 0200001  
1360 0300001

**Central Registry:**

0238-1

**REGIONAL SENIORS  
RESEARCH ACTIVITY -  
ATLANTIC**

**Objective:**

To provide services for the production of a video entitled "Seniors Housing Options".

**Division:**

Regional Offices

**Contractor:**

Nova Scotia Department of  
Housing and Consumer Affairs  
P.O. Box 815  
Dartmouth, Nova Scotia  
B2Y 3Z3

**CIDN:**

0883 1350002

**Central Registry:**

0185-142-1

**REGIONAL SENIORS  
RESEARCH ACTIVITY -  
ATLANTIC**

**Objective:**

To test a model in which trades people retired from the construction field, or other interested volunteers, are trained to inform seniors on home adaptations and repairs.

**Division:**

Regional Offices

**Contractor:**

New Brunswick Department  
of Municipalities, Culture and  
Housing  
P.O. Box 6000  
Fredericton, New Brunswick  
E3B 5H1

**CIDN:**

0883 1350003

**Central Registry:**

0185-142-1



## Ongoing Projects/Projets en cours

### ASSESS THE IMPACT OF ENERGY EFFICIENCY IMPROVEMENT IN APPLIANCES ON DETACHED HOUSING

**Objective:**

Assess the impact of energy efficiency improvement in appliances on detached housing.

**Division:**

Research Division

**Contractor:**

Thermal Engineering  
15 Hanover Court  
Halifax, Nova Scotia  
B3M 3K7

**CIDN:**

1058 0200001

**Central Registry:**

6716-17-2

### EIFS RAINSCREEN PRODUCT SYSTEM

**Objective:**

Develop new methods of installing exterior insulation and finish systems (EIFS). The new product system will encompass interconnected aspects of the wall portion of the building envelope.

**Division:**

Research Division  
Housing Technology  
Incentives Program

**Contractor:**

STO Enterprises Inc.  
3495 Laird Road  
Units 16-18  
Mississauga, Ontario  
L5L 5S5

**CIDN:**

1268 0200001  
1268 0201001

**Central Registry:**

6521-32/93

### ENERGY AUDITS OF TEN HIGH-RISE RESIDENTIAL BUILDINGS

**Objective:**

To determine the total energy gain and losses for 10 high-rise buildings across the country.

**Division:**

Housing Innovation Division

**Contractor:**

Scanada Consultants Limited  
436 MacLaren Street  
Ottawa, Ontario  
K2P 0M8

**CIDN:**

1291 0300001

**Central Registry:**

6765-21

### ENVIRONMENTAL IMPACT STUDY FOR HOUSING ENERGY EFFICIENCY TECHNOLOGY IMPACTS

**Objective:**

To assess the energy efficiency of improved thermal envelope performance and the impact of the envelope changes on the general environment and on indoor air quality.

**Division:**

Research Division  
Panel on Energy Research  
and Development

**Contractor:**

SAR Engineering Limited  
8884 - 15th Avenue  
Burnaby, British Columbia  
V3N 1Y3

**CIDN:**

0847 0200001  
0847 0201001

**Central Registry:**

6716-17-1

### ENVIRONMENTAL IMPROVEMENT THROUGH URBAN ENERGY MANAGEMENT

**Objective:**

To produce an overview paper on environmental improvement through urban energy management in Canada.

**Division:**

International Relations  
Division

**Contractor:**

Torrie Smith Associates  
255 Centrum Boulevard  
Suite 302  
Orleans, Ontario  
K1E 3V8

**CIDN:**

0878 0901001  
0878 0900004

**Central Registry:**

4305-4-8

**HEAT, AIR, AND MOISTURE  
TRANSFER IN HIGH-RISE  
BUILDING ENVELOPES**

**Objective:**

To develop design guidelines for energy efficiency and durability of wall structures and roofing systems of residential high-rise buildings.

**Division:**

Research Division

**Contractor:**

National Research Council  
Building M-20  
Montreal Road  
Ottawa, Ontario  
K1A 0R6

**CIDN:**

0719 0200001  
0719 0201001

**Central Registry:**

6793-28

**INVESTIGATION OF  
EXTERIOR INSULATING AND  
FINISH SYSTEMS (EIFS)**

**Objective:**

To carry out an investigation of exterior insulated and finish systems through controlled laboratory testing. The following will be tested: mesh tensile strength, moisture permeability, joint spacing, sealant bond, and joint design.

**Division:**

Housing Innovation Division

**Contractor:**

Warnock Hersey Professional  
Services Ltd.  
211 Schoolhouse Street  
Coquitlam, British Columbia  
V3K 4X9

**CIDN:**

1057 0300001

**Central Registry:**

6796-17



# **ENVIRONMENTAL POLLUTION AND CONTROL/ POLLUTION DE L'ENVIRONNEMENT ET SON CONTRÔLE**

## **Completed Reports/Rapports terminés**

### **LES ACTIVITÉS DE LA SCHL PORTANT SUR DES QUESTIONS ENVIRONNEMENTALES = CMHC RESEARCH ACTIVITIES WHICH ADDRESS ENVIRONMENTAL CONCERNS.**

*Ottawa : Société canadienne d'hypothèques et de logement, 1994.*

Ce document examine les recherches de la SCHL dans les domaines suivants : le développement durable; la diffusion de l'information; les questions d'urbanisme; les infrastructures; la maison saine; l'efficacité en matière d'énergie; l'air ambiant; les effets du plomb; les terrains contaminés; et les relations internationales. Le rapport décrit le travail entrepris récemment par la SCHL et fournit de brefs sommaires des rapports de recherche qui portent sur des questions environnementales reliées au logement.

NOTE: Bilingue/bilingual.

### **CMHC RESEARCH ACTIVITIES WHICH ADDRESS ENVIRONMENTAL CONCERNS = LES ACTIVITÉS DE LA SCHL PORTANT SUR DES QUESTIONS ENVIRONNEMENTALES.**

*Ottawa: Canada Mortgage and Housing Corporation, 1994.*

This document reviews CMHC's research activities in the following areas: sustainable development; information exchange; community planning; urban infrastructure; healthy housing; energy efficiency; the indoor environment; lead hazards; contaminated lands; and international relations. The report describes work programs being pursued currently by CMHC and provides brief summaries of research reports which focus on environmental concerns related to housing.

NOTE: Bilingual/bilingue.

### **CLEANING UP YOUR HOUSE AFTER A FLOOD (NHA 6789).**

*Ottawa: Canada Mortgage and Housing Corporation, 1994. \*\*Price: \$3.00 (includes handling charge and GST).*

NOTE: Available from: CMHC Publications, Canada Mortgage and Housing Corporation, 700 Montreal Road, Ottawa, Ontario K1A 0P7. Enclose a certified cheque or money order made out to Canada Mortgage and Housing Corporation.

This booklet offers advice to people who have experienced water damage as a result of plumbing leaks, major spills, flooding, or sewer back-ups. Each of these conditions causes materials to become damp, wet, or saturated, and therefore susceptible to microbial attack from molds, bacteria, or other organisms. The publication provides practical information on decontaminating and cleaning the house, flooded appliances, and other electrical equipment. It also gives advice on what materials and objects to keep and what should be discarded.

NOTE: Aussi disponible en français sous le titre : *Nettoyer sa maison après une inondation (LNH 6790).*

## **ENVIRONMENTAL CHOICES FOR HOME BUILDERS AND RENOVATORS.**

*Prepared by Energy Pathways Inc. Ottawa: Canadian Home Builders' Association; Canada Mortgage and Housing Corporation; Toronto: Ontario New Home Warranty Program, 1994.*

NOTE: Available for \$34.00 (plus GST) from the Canadian Home Builders' Association, 150 Laurier Ave. West, Suite 200, Ottawa, Ontario, K1P 5J4.

This guide has been developed to help the home builder or renovator set environmental priorities and make effective choices. It explains how home builders and renovators are uniquely positioned to make an environmental difference and contains suggestions for marketing environmental benefits to their customers. The guide also includes a comprehensive products and technologies section which identifies a wide range of products that can improve the environmental performance of housing. Many of the products are "everyday" items with which most builders and renovators are already familiar. Products are presented on a generic basis; no brand names or trade names are mentioned. However, contacts for obtaining additional information on suppliers are included throughout the guide. In addition, a list of programs and publications is provided for those home builders and renovators who want to find out more about environmental housing issues.

## **HEALTHY MATERIALS: A COMMUNiqué ON MATERIAL EMISSION TESTING AND STANDARDS ACTIVITIES.**

*Ottawa: Canada Mortgage and Housing Corporation, 1994.*

This first issue of "Healthy Materials" strives to present an overview of the current state of emission testing and standards development, with a particular focus on Canadian activities. There are reports on industry testing and labelling programs, government research, current activities of the Task force on Material Emissions, demonstration projects and recent publications. Listings are provided of existing and proposed emission test standards and Priority Substance reports. These will be updated in subsequent issues.

NOTE: Aussi disponible en français sous le titre : *Matériaux sains*.

## **MATÉRIAUX SAINS : UN BULLETIN SUR LES ACTIVITÉS RELATIVES AUX ESSAIS ET AUX NORMES D'ÉMISSION DES MATÉRIAUX.**

*Ottawa : Société canadienne d'hypothèques et de logement, 1994.*

Le premier numéro de «Matériaux sains» offre une vue d'ensemble de l'état actuel du développement des essais et des normes en matière d'émission, en accordant une attention particulière aux activités qui se déroulent au Canada. Vous y trouverez des rapports sur des programmes industriels d'essai et d'étiquetage, sur la recherche gouvernementale, sur les activités courantes de l'équipe de travail sur l'émission des matériaux, sur des projets de démonstration et sur des publications récentes. Vous trouverez ci-après des énumérations de normes actuelles et proposées d'essai en matière d'émission et de rapports sur des substances d'intérêt prioritaire. La mise à jour de ces normes et rapports se fera dans d'autres numéros.

NOTE: Also available in English under the title: *Healthy Materials*.

## **ENVIRONMENTAL POLLUTION AND CONTROL/ POLLUTION DE L'ENVIRONNEMENT ET SON CONTRÔLE**

### **NETTOYER SA MAISON APRÈS UNE INONDATION (LNH 6790).**

Ottawa : Société canadienne d'hypothèques et de logement, 1994. \*\*Prix: 3,00 \$ (Les frais de manutention et la TPS sont compris).

NOTE: Disponible à : Publications de la SCHL, Société canadienne d'hypothèques et de logement, 700 chemin de Montréal, Ottawa (Ontario) K1A 0P7.  
Joignez un chèque certifié ou un mandat à l'ordre de la Société canadienne d'hypothèques et de logement.

Ce livret offre des conseils aux personnes victimes de dégâts causés par l'eau à la suite de fuites de conduits, de grands déversements, d'une inondation ou d'un débordement d'égouts. Dans chacun de ces cas, les matériaux et objets deviennent humides, mouillés ou saturés, et sont donc susceptibles d'être atteints par la moisissure, les bactéries ou d'autres organismes. La publication fournit de l'information d'ordre pratique sur la décontamination et le nettoyage de la maison ainsi que sur les appareils ou autres installations électriques inondés. Elle donne également des conseils sur les matériaux et objets qu'on peut garder et ceux qu'on devrait jeter.

NOTE: Also available in English under the title: *Cleaning Up Your Home After A Flood* (NHA 6789).

### **RESIDENTIAL ENVIRONMENTAL HAZARD POLICIES IN OTHER COUNTRIES: FINAL REPORT.**

*Prepared by the ARA Consulting Group Inc. Prepared for Strategic Planning and Policy Development Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.*

The ARA Consulting Group Inc. was contracted to conduct a review of the public and protective policy options developed in various jurisdictions outside Canada with respect to the following residential environmental hazards: formaldehyde concentrations; volatile organic compounds; lead-based paints; soil contaminants and soil gas infiltration; radon infiltration; asbestos; respirable particles; and mould spores.

The broad objective of this study was to determine whether a review and assessment of the policies developed and implemented to address environmental hazard issues in other jurisdictions would provide new and unique alternatives for CMHC to explore, or particular insights for CMHC to consider. The study indicated that, with the exception of the United States, policy activity with respect to residential environmental hazard issues is very much in its infancy. As a consequence, in terms of public policies, very little new information can be garnered from the international community with respect to emerging environmental hazard issues of concern, or the types of public policy measures available to address environmental hazards in the residential sector. Similarly, with respect to protective policies, the analysis was not very revealing. A small number of protective measures were identified in the analysis. However, none of the tools provided a particularly novel approach to limiting and/or shifting liability. Rather, the protective measures identified in the course of the study simply represent formal expressions of common sense solutions to limiting legal and financial risks.



# ADVICE ON THE DRAFTING OF EMISSION TEST STANDARDS

## Objective:

Provide specific advice on improving three draft emission test standards.

## Division:

Research Division

## Contractor:

Stewart S. Fritts  
2415 Lazybrook  
Houston, Texas  
77008

## CIDN:

0200002

## Central Registry:

6719-3

# CONCENTRATIONS DE RADON-222 AU QUÉBEC

## Objet :

Évaluer les concentrations moyennes annuelles de radon présentées dans un échantillon représentatif de résidences dans la province de Québec.

## Division :

Division de la recherche  
Programme de subventions de recherche

## Contractant :

Monsieur Benoît Lévesque  
Centre hospitalier de l'université Laval  
2050, boul. Saint-Cyrille ouest  
Ste-Foy (Québec)  
G1V 2K8

## NIC :

0915 0200001

## Numéro de la gestion des documents :

6585/L63

# CONSUMER PUBLICATIONS ON DUCT CLEANING, HYGROMETER AND COMBUSTION SPILLAGE

## Objective:

To prepare three consumer documents based on the results of recent research.

## Division:

Research Division

## Contractor:

Marbek Resource Consultants Ltd.  
1355 Bank Street  
Suite 500  
Ottawa, Ontario  
K1H 8K7

## CIDN:

1335 0200001

## Central Registry:

6730-14

# DESIGN AND SPECIFICATIONS OF A CLEAN ADDITION TO AN EXISTING HOUSE

## Objective:

To develop a generic design for a "clean addition" to an existing house to assist homeowners who want to build a clean environment for a hypersensitive member of the family; to identify appropriate building techniques and materials, and include alternative design options.

## Division:

Research Division

## Contractor:

Drerup-Armstrong Ltd.  
P.O. Box 130  
Carp, Ontario  
K0A 1L0

## CIDN:

1212 1100001

## Central Registry:

6717-16

# DEVELOPING TOOLS FOR MEASURING THE PERFORMANCE OF MOLD-TROUBLED HOUSING

## Objective:

To develop tools for measuring the performance of mold-troubled housing.

## Division:

Research Division

## Contractor:

Appin Associates  
472 Academy Road  
2nd Floor  
Winnipeg, Manitoba  
R3N 0C7

## CIDN:

1243 0200002

## Central Registry:

6725-19-2

# ENVIRONMENTAL POLLUTION AND CONTROL/ POLLUTION DE L'ENVIRONNEMENT ET SON CONTRÔLE

## DEVELOPMENT OF A MECHANICAL SYSTEM FOR A RESIDENTIAL CLEAN HOME

### Objective:

To determine the best mechanical system or systems that will provide heating and ventilation for the "clean" addition to an existing house.

### Division:

Research Division

### Contractor:

Drerup-Armstrong Ltd.  
P.O. Box 130  
Carp, Ontario  
K0A 1L0

### CIDN:

1213 1100001  
1213 1101001

### Central Registry:

6717-16

## THE DEVELOPMENT OF A TRAINING PROGRAM FOR INDOOR AIR QUALITY HOUSE EXPERTS

### Objective:

Development of a training program for IAQ house experts; delivery of the pilot course; evaluation of the pilot course; exploration of future administrators of the program.

### Division:

Research Division

### Contractor:

Jools Development  
P.O. Box 69  
Quadeville, Ontario  
K0J 2G0

### CIDN:

1302 1100001

### Central Registry:

6717-20

## DIRECTORY OF RESIDENTIAL INDOOR AIR QUALITY PRODUCTS AND SERVICES

### Objective:

To survey the Canadian indoor air quality industry to identify those firms that offer products or services that could be of interest to householders; to integrate this search with the needs of Industry Canada and Ontario's Green Industry Office; to produce several documents, as required by the three funding agencies, etc.

### Division:

Research Division

### Contractor:

Cullbridge Marketing and Communications  
809 Quinlan Road  
Ottawa, Ontario  
K1G 1R8

### CIDN:

1363 0200001

### Central Registry:

6717-22

## EMISSION TESTING OF SELECTED BUILDING MATERIALS

### Objective:

To conduct emission tests on groups of selected building materials (caulks, sealants, urethane foam, and pressed wood products).

### Division:

Research Division

### Contractor:

National Research Council  
Institute for Research in Construction  
Montreal Road  
Ottawa, Ontario  
K1A 0R6

### CIDN:

0964 1100002

### Central Registry:

6717-7

## AN EVALUATION OF THE BARRHAVEN HOUSING PROJECT

### Objective:

To undertake an evaluation of the Barrhaven housing project, a housing project in Ottawa, Ontario designed for the environmentally hyper-sensitive; to survey the occupants and landlord to assess whether their needs are being met and what advantages or limitations are encountered with this type of housing.

### Division:

Research Division

### Contractor:

Flett Consulting Groups Inc.  
130 Slater Street, Suite 750  
Ottawa, Ontario  
K1P 6E2

### CIDN:

1323 0200001  
1323 1100001

### Central Registry:

6717-19



## **AN EVALUATION OF THE SCREENING MEASUREMENT AS AN INDICATOR OF AVERAGE ANNUAL INDOOR RADON EXPOSURE**

### **Objective:**

Assess the short term screening measurement as an indicator of the average annual radon levels in homes.

### **Division:**

Research Division  
External Research Program

### **Contractor:**

Michael W.R. LaFontaine  
LaFontaine Consulting  
Services  
106 Krug Street  
Kitchener, Ontario  
N2H 2X9

### **CIDN:**

1276 0200001

### **Central Registry:**

6585-L060-4

## **GUIDE TO MECHANICAL EQUIPMENT FOR HEALTHY INDOOR ENVIRONMENTS**

### **Objective:**

To develop a guide to mechanical equipment for healthy indoor environments, covering heating, cooling, ventilating and air purification equipment.

### **Division:**

Research Division

### **Contractor:**

Habitat Design & Consulting  
Ltd.  
1662 West - 75th Avenue  
Vancouver, British Columbia  
V6P 6G2

### **CIDN:**

1031 1100001

### **Central Registry:**

6717-13

## **INVESTIGATING PROBLEM HOMES OF THE HYPERSENSITIVE**

### **Objective:**

To undertake a survey of homes that have presented health-related problems to hypersensitive occupants.

### **Division:**

Research Division

### **Contractor:**

Drerup Armstrong Ltd.  
P.O. Box 130  
Carp, Ontario  
K0A 1L0

### **CIDN:**

1033 0200001

### **Central Registry:**

6717-14

## **MECHANICAL SYSTEM FOR THE CMH4C HOUSE**

### **Objective:**

To supply a prototype mechanical system for a prefab house designed specifically for people who are environmentally hypersensitive.

### **Division:**

Research Division

### **Contractor:**

Geddes Enterprises  
45 Massey Lane  
Bramalea, Ontario  
L6S 2V8

### **CIDN:**

0928 1103001

### **Central Registry:**

6760-10

## **A PLANNING MODEL FOR ESTIMATION OF PHOSPHORUS LOADING FROM ON-SITE SYSTEMS**

### **Objective:**

A systematic examination of the variables that may control phosphorus contributions to lakes. The model will recognize loadings leaving an on-site system, differences between failed systems and normal operation, geology, and soils.

### **Division:**

Research Division  
External Research Program

### **Contractor:**

Dr. Donald H. Waller  
Technical University of N.S.  
P.O. Box 1000  
Halifax, Nova Scotia  
B3J 2X4

### **CIDN:**

0918 0200001

### **Central Registry:**

6585-W29-2

## ENVIRONMENTAL POLLUTION AND CONTROL/ POLLUTION DE L'ENVIRONNEMENT ET SON CONTRÔLE

### PRODUCTION OF AN EMISSIONS TESTING NEWSLETTER AND SUPPORT FOR THE TASK FORCE ON MATERIAL EMISSIONS STANDARDS

#### Objective:

To carry out production of an emissions testing newsletter and support for the task force on material emissions standards.

#### Division:

Research Division

#### Contractor:

Scanada Consultants Limited  
436 MacLaren Street  
Ottawa, Ontario  
K2G 0M8

#### CIDN:

1244 0200001

#### Central Registry:

6719-3

### PROTOCOL FOR RESIDENTIAL INDOOR AIR QUALITY INVESTIGATIONS

#### Objective:

Develop a protocol or expert system to assist in the analysis of problems associated with unhealthy or hazardous residential buildings. The research will identify and investigate several buildings in the Ottawa area to test and improve the protocol.

#### Division:

Research Division  
External Research Program

#### Contractor:

George E. Vandrish  
Research Director  
Instruscience Limited  
484 Gladstone Avenue  
Ottawa, Ontario  
K1R 5N8

#### CIDN:

0926 0200001

#### Central Registry:

6585-V17-2

### STUDY OF THE HOUSING NEEDS OF THE ENVIRONMENTALLY HYPERSENSITIVE- SOCIO-ECONOMIC/ HEALTH FACTORS

#### Objective:

To conduct a survey, sampling various regions of the country, to document the socio-economic characteristics and the perceived housing-related needs of environmentally hyper-sensitive people who are intending to or who would like to make housing changes.

#### Division:

Research Division

#### Contractor:

Ekos Research Associates Inc.  
275 Sparks Street  
Suite 801  
Ottawa, Ontario  
K1R 7X9

#### CIDN:

1257 1100001  
1257 1101001

#### Central Registry:

6717-19

### SURVEY OF ADVERSE HEALTH EFFECTS OF MOULD EXPOSURE

#### Objective:

To support the survey called "The Respiratory Health Effects of Indoor Moulds". This study will look at about 500 houses to identify how much biologically-active material there is in house air and dust. Frequency of cough will also be measured and compared to parental reports. In the final phase, the health of occupants will be assessed as well as the reasons for moisture problems in 100 of the houses.

#### Division:

Research Division

#### Contractor:

Health and Welfare Canada  
Bureau of Chemical Hazards  
Environmental Health Centre  
Room 130, Tunney's Pasture  
Ottawa, Ontario  
K1A 0L2

#### CIDN:

0843 0201001

#### Central Registry:

6725-19-2

**A SURVEY OF  
ELECTROMAGNETIC FIELD  
LEVELS IN CANADIAN  
HOUSING**

**Objective:**

To review the state-of-the-art in knowledge and housing research into EMF and prepare an interim report, to conduct a field survey of EMF levels in representative housing, and to prepare a report on the findings with recommendations for remedial measures.

**Division:**

Research Division

**Contractor:**

The Planetary Association for Clean Energy Inc.  
100 Bronson Avenue  
Suite 1001  
Ottawa, Ontario  
K1T 6G8

**CIDN:**

1051 0200001

**Central Registry:**

0427-15

**A SURVEY OF PROBLEM  
HOMES OF THE  
ENVIRONMENTALLY  
HYPERSENSITIVE**

**Objective:**

This project will involve a survey of "sick" homes. These are homes that have presented health-related problems to hypersensitive occupants. A protocol will be applied in surveying the homes to identify the indoor air problems, their sources and solutions.

**Division:**

Research Division

**Contractor:**

Drerup Armstrong Ltd.  
P.O. Box 130  
Carp, Ontario  
K0A 1L0

**CIDN:**

1033 1100001

**Central Registry:**

6717-14

**BUILD GREEN AND  
CONVENTIONAL MATERIALS  
OFF-GASSING TESTS**

**Objective:**

To test recycled construction materials and conventional building materials for their off-gassing characteristics.

**Division:**

Housing Innovation Division

**Contractor:**

Ortech International  
2395 Speakman Drive  
Mississauga, Ontario  
L5K 1B3

**CIDN:**

0992 0300004

**Central Registry:**

6790-9

**USE OF BIOCIDES BY  
RESIDENTIAL DUCT  
CLEANERS**

**Objective:**

To determine the type and application of biocides used.

**Division:**

Research Division

**Contractor:**

Figley Consulting Associates Ltd.  
350 Crean Crescent  
Saskatoon, Saskatchewan  
S7J 3X2

**CIDN:**

0994 0201001

**Central Registry:**

6725-21



## Completed Reports/Rapports terminés

### COMMUNITY ENERGY SYSTEMS.

*Prepared by Alco Engineers Inc. Prepared for Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.*

This report examines a broad range of issues relating to the implementation of cogeneration in low-rise residential applications. Cogeneration technology is outlined in general terms, and the specific aspects of reciprocating engine cogeneration plants are presented in greater technical detail. A design concept is developed for the application of a reciprocating engine-based cogeneration system to a generic single dwelling unit, operating with a supplementary boiler in a thermal load following mode. A second concept is developed for a generic, multiple-unit, low-rise dwelling which incorporates district heating infrastructure. In addition, five sites are studied for the potential application of cogeneration. None of the sites offer an application which "stands out" as a potential champion, based on conventional investment criteria.

The implementation of cogeneration in multi-unit, low-rise housing development can offer substantial environmental and operating cost-savings benefits but also poses some challenges. In order to attain a reasonable cogeneration plant size, a relatively large number of dwellings must be combined via a district heating infrastructure. The cost of this infrastructure is quite significant compared to the conventional energy-supply option and makes the rate of return on the overall proposition relatively unattractive by conventional investment standards.

The routing of electrical power from the cogeneration plant to the housing units could be achieved in a number of ways. Using the utility distribution system is the only cost-effective approach for a large number of units. Parallel generation is a well proven concept. The difficulties that arise here are regulatory in nature. Ownership of the plant, and power purchasing options must be carefully reviewed in light of the prevailing regulations. In the end, the value of the electricity produced must remain high enough, relative to the fuel used, to offer acceptable operating cost savings.

### Ongoing Projects/Projets en cours

#### DEVELOP DESIGN GUIDELINES FOR HEATING AND VENTILATING SYSTEMS IN MULTI-UNIT RESIDENTIAL BUILDINGS

##### Objective:

To improve the installation and operating characteristics of the energy consuming systems in high-rise residential structures.

##### Division:

Research Division

##### Contractor:

Scanada Consultants Limited  
436 MacLaren Street  
Ottawa, Ontario  
K1A 0M8

##### CIDN:

1042 0200001

##### Central Registry:

6725-13-2

#### INVESTIGATION OF OPERATING CHARACTERISTICS OF HVAC SYSTEMS

##### Objective:

To improve understanding of the operating characteristics of high-rise residential HVAC systems leading to better heating and ventilating systems in high-rise residential structures.

##### Division:

Research Division

##### Contractor:

R.C. Tramblyn  
HVAC Consultant  
2 Sheppard Avenue East  
Suite 200  
North York, Ontario  
M2N 5Y7

##### CIDN:

0823 0200002

##### Central Registry:

6525-13

# HIGH-RISE CONSTRUCTION/ CONSTRUCTION D'IMMEUBLES DE GRANDE HAUTEUR

## Ongoing Projects/Projets en cours

### INDUSTRY GUIDELINES ON THE COMPARTMENTALIZING OF THE PRESSURE EQUALIZED CAVITY

**Objective:**

To produce industry  
guidelines on the  
compartmentalizing of the  
pressure equalized cavity.

**Division:**

Housing Innovation Division

**Contractor:**

Boundary Layer Wind Tunnel  
Laboratory  
University of Western Ontario  
London, Ontario  
N6A 5B9

**CIDN:**

1123 0300002

**Central Registry:**

6793-21-3

### OPERATING COST PROFILES IN MULTI-UNIT RESIDENTIAL BUILDINGS

**Objective:**

To obtain operating cost  
profiles in Canadian  
multi-unit residential  
buildings.

**Division:**

Research Division

**Contractor:**

Real Estate Institute of  
Canada  
305-2200 Lakeshore Blvd.  
West  
Toronto, Ontario  
M8V 1A4

**CIDN:**

1024 0200001

**Central Registry:**

6600-35

### OPERATING COST PROFILES IN MULTI-UNIT RESIDENTIAL BUILDINGS

**Objective:**

To obtain operating cost  
profiles in Canadian  
multi-unit residential  
buildings.

**Division:**

Research Division

**Contractor:**

BOMA Canada  
#2012 - 20 Queen Street West  
Toronto, Ontario  
M5H 3R2

**CIDN:**

1024 0200002

**Central Registry:**

6600-35



### Ongoing Projects/Projets en cours

#### **A STUDY TO IDENTIFY COMMERCIALLY FEASIBLE RESIDENTIAL AUTOMATION PRODUCTS AND STRATEGIES**

##### **Objective:**

To organize two workshops in Ottawa to identify salient technical issues as a necessary background for subsequent interviews and to analyse this information in conjunction with subsequent workshops, interviews and focus groups to produce a report.

##### **Division:**

Research Division

##### **Contractor:**

Canadian Automated Building  
Association (CABA)  
1200 Montreal Road  
Building M-20  
Ottawa, Ontario  
K1A 0R6

##### **CIDN:**

1254 020001

##### **Central Registry:**

6702-4

## HOME OWNERSHIP/HABITATIONS – POSSESSION

### Ongoing Projects/Projets en cours

#### **AN EXAMINATION OF THE FEASIBILITY OF DEVELOPING A CANADIAN HOMEOWNER'S MANUAL**

##### **Objective:**

To determine whether the development of a home-owner's manual is a feasible and appropriate undertaking for CMHC and, if so, identify the most effective ways in which it can be produced and delivered and maintained.

##### **Division:**

Research Division

##### **Contractor:**

Reid/Foster Associates  
55 Rosebery Avenue  
Ottawa, Ontario  
K1S 1W1

##### **CIDN:**

1314 0200001

##### **Central Registry:**

6702-5

#### **HOME OWNERSHIP PROGRAMS PARTICIPANT TRACKING PROJECT**

##### **Objective:**

A methodological report documenting the data collection methods and data elements required for surveying program participants.

##### **Division:**

Program Evaluation Division

##### **Contractor:**

SPR Associates Incorporated  
2378 Danforth Avenue  
2nd Floor  
Toronto, Ontario  
M4C 1K7

##### **CIDN:**

1112 0500001

##### **Central Registry:**

0429-2

## Ongoing Projects/Projets en cours

### THE HOUSING NEEDS OF HOMELESS CANADIANS

#### Objective:

To collect data from shelters, hostels, social agencies, private agencies, and public sources in the Toronto area. To interview homeless persons as well as those who work with the homeless.

#### Division:

Research Division  
External Research Program

#### Contractor:

Dr. Thomas Fleming  
Department of Sociology and  
Anthropology  
University of Windsor  
Windsor, Ontario  
N9B 3P4

#### CIDN:

0748 0200001

#### Central Registry:

6585-F36

### DATA GATHERING ON LABOUR STANDARDS AND PROVINCIAL CONSTRUCTION PROCUREMENT POLICY

#### Objective:

A data gathering exercise resulting in the production of a report on the regulatory aspects of labour standards and procurement policies.

#### Division:

Strategic Planning and Policy  
Development Division

#### Contractor:

Patrick Warren  
54 High Street  
Waterloo, Ontario  
N2L 3X8

#### CIDN:

1303 0100001

#### Central Registry:

6860-21

### LITERATURE SEARCH ON EARTHQUAKE-RESISTANT RESIDENTIAL CONSTRUCTION

#### Objective:

To catalogue and review the literature available in the United States on the subject of earthquake-resistant residential construction and to evaluate the market potential for a Canadian document on this subject in the United States.

#### Division:

Housing Innovation Division

#### Contractor:

Christopher Guly  
304 - 1338 North Sierra  
Bonita Avenue  
Los Angeles, California  
90046

#### CIDN:

1355 0300001

#### Central Registry:

6503/35

### OPTIMISATION DE LA PERFORMANCE D'UN PROCÉDÉ DE RESURFA- CAGE DE MURS DE BÉTON OU DE MAÇONNERIE

#### Objet :

Étude visant à améliorer le procédé de fabrication et les performances générales d'un nouveau procédé de revêtement pour bâtiment.

#### Division :

Division de la recherche  
Programme d'encouragement  
à la technologie du bâtiment  
résidentiel

#### Contractant :

Michel Fortin  
Fortex Inc.  
1415 rue St-Pierre Ouest,  
app. 5  
St-Hyacinthe (Québec)  
J2T 1P3

#### NIC :

1266 0200001

#### Numéro de la gestion des documents :

6521-30/93

## Completed Reports/Rapports terminés

### THE DISTRIBUTION OF GOVERNMENT HOUSING RESPONSIBILITIES IN SIX OECD COUNTRIES.

*Prepared by Clayton Research Associates Limited in association with Klotz Associates and the Urban Institute. Prepared for International Relations Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1991, (i.e. 1994).*

This study compares housing policies and the division of housing responsibilities among various levels of government in six industrialized countries: Switzerland, the Federal Republic of Germany, France, the United Kingdom, the United States and Australia. The discussion on housing policy focuses on social housing, market housing, housing finance, housing regulation, renovation assistance and housing research. The study consists of seven separate reports: one for each of the six countries and an overview paper.

There is a slight but discernable general trend towards the decentralization of housing responsibility in most of the countries in the study. The degree and form of decentralization has been different in each country and has been accompanied by a noticeable reduction in the willingness of national governments to intervene directly in housing markets. For example, there has been a movement away from the centralized provision (or financing) of social housing towards income supports such as housing allowances.

Other clear trends which were observed to a greater or lesser degree in all of the countries include: deregulation of housing and financial markets; globalization of financial markets; rising homeownership rates; and increased reliance on the private sector.

### Ongoing Projects/Projets en cours

#### A.G.M.E. STUDY TOUR OF EUROPE - NOVEMBER, 1992

##### Objet :

Cette aide est accordée pour la production d'un rapport analytique fondé sur les observations des participants au voyage d'études en question.

##### Division :

Relations internationales

##### Contractant :

Assoc. Québécoise pour la maîtrise de l'énergie  
5, place Ville-Marie  
Bureau 903, 9-étage  
Montréal (Québec)  
H3B 2G2

##### NIC :

1055 0900001

#### Numéro de la gestion des documents :

0225-11

#### CANADIANS AND THEIR HOUSING EXPENDITURES, 1978-1992

##### Objective:

To update the temporal housing expenditure analyses completed in the 1990 report, "An Examination of Household Housing Expenditures, 1978-1986." The methodology applied to the 1978, 1982, and 1986 FAMEX micro-data bases is to be extended to the 1992 FAMEX micro-data base. The research will identify if major socio-economic shifts which occurred between 1978 and

1986 continued, and if core housing need grew even more concentrated amongst a group of disadvantaged renter households.

##### Division:

Research Division

##### Contractor:

Mr. Boriss Mazikins  
1025 Grenon Avenue, #1021  
Ottawa, Ontario  
K2B 8S5

##### CIDN:

1221 0200001

##### Central Registry:

6620-17-2



## **EXPENDITURES ON HOUSING THROUGH THE SOCIAL ASSISTANCE PROGRAMS**

### **Objective:**

To determine the magnitude of housing expenditures through the programs of social assistance, by private and public sectors.

### **Division:**

Senior Vice-President's Office

### **Contractor:**

Canadian Housing and  
Renewal Association  
251 Laurier Avenue West  
Suite 401  
Ottawa, Ontario  
K1P 5J6

### **CIDN:**

1382 0600001

### **Central Registry:**

0238/C20

## **FINANCIAL SUPPORT FOR AN UPDATE OF THE QUALITY PLUS RESOURCE CENTRES**

### **Objective:**

To update the quality plus resource centres developed by the R-2000 program in 1987.

### **Division:**

Housing Innovation Division

### **Contractor:**

Canadian Home Builders'  
Association  
150 Laurier Avenue West  
Suite 200  
Ottawa, Ontario  
K1P 5J4

### **CIDN:**

1362 0300001

### **Central Registry:**

0235/C35

## **FUTURE ECONOMIC CONDITIONS AND THE HOUSING SECTOR**

### **Objective:**

To study the potential impacts of various scenarios of long term economic conditions, including the possibility of deflation, for the housing sector. The research will include a review of the general conditions associated with continued slow economic growth and deflationary contraction and pay special attention to the behaviour of households, the housing industry and financial institutions in such contexts. Through the development of scenarios of future economic conditions, the study will explore the implications for various components of the housing sector.

### **Division:**

Research Division  
Centre for Future Studies in  
Housing and Living  
Environments  
Experts in Residence Program

### **Contractor:**

Nicole Morgan  
377 Maple Lane  
Ottawa, Ontario  
K1M 1H7

### **CIDN:**

1015 0202001

### **Central Registry:**

6855-5

## **HOUSE-BASED HOUSE PRICE INDEXES FOR CANADIAN CITIES AND MLS AVERAGE PRICES**

### **Objective:**

To provide an inexpensive price index showing house price change in Canadian CMA's starting in 1990; to provide evidence on the reliability of the MLS price averages as price indexes for Canadian CMA's.

### **Division:**

Research Division  
External Research Program

### **Contractor:**

Mrs. Marion Steele  
Associate Professor  
Department of Economics  
University of Guelph  
Guelph, Ontario  
N1G 2W1

### **CIDN:**

1288 0200001

### **Central Registry:**

6585-5037-4

## **INTERNATIONAL YEAR OF THE FAMILY PUBLICATION**

### **Objective:**

Preparation of three housing profiles for an upcoming International Year of the Family publication.

### **Division:**

Statistical Services Division

### **Contractor:**

Statistics Canada  
D274 Jean Talon Building  
Tunney's Pasture  
Ottawa, Ontario  
K1A 0T6

### **CIDN:**

1108 0400008

### **Central Registry:**

7050-7

### **MAXIMIZATION OF COMMUNITY BENEFITS DERIVED FROM HOUSING PROGRAMS IN REMOTE COMMUNITIES**

#### **Objective:**

This project was designed to help remote communities realize full benefits of self-help housing programs (RNH demo projects) and, to explore opportunities for further application in community economic development of skills the residents developed through self-help housing programs. The community identified for study was Sheshatshiu, Labrador.

The project comprises three stages which are:

- A community survey of skills and skill levels, especially those gained in conjunction with RNH housing development, towards the development of a community skill inventory;
- The assessment of these skills relative to potential initiatives in community economic development; and
- The development of a "How To" manual which other communities could use to replicate the inventory and assessment process.

#### **Division:**

Strategic Planning and Policy Development Division

#### **Contractor:**

Terpstra and Associates Ltd.  
324 Hamilton River Road  
P.O. Box 10, Station "A"  
Goose Bay, Newfoundland  
A0P 1S0

#### **CIDN:**

0798 0100001

#### **Central Registry:**

6850-2

### **OPTIONS FOR ORGANIZING THE DEVELOPMENT AND IMPLEMENTATION OF HOUSING POLICY AND PROGRAMS IN CANADA**

#### **Objective:**

To provide a comprehensive and responsible review of issues and options for organizing the development and implementation of housing policy and programs in Canada.

#### **Division:**

Senior Vice-President's Office  
Policy, Research and  
Communications

#### **Contractor:**

The Bayswater Consulting  
Group Inc.  
82 Bayswater Avenue  
Ottawa, Ontario  
K1Y 2E9

#### **CIDN:**

1343 0600001

#### **Central Registry:**

6850-3

### **PRESTON DEMONSTRATION**

#### **Objective:**

To determine the viability of a self-built housing assistance option in an urban setting.

#### **Division:**

Senior Vice-President's Office  
Policy, Research and  
Communications

#### **Contractor:**

The Nova Scotia Department  
of Housing and Consumer  
Affairs  
Alderney Gate  
40 Alderney Drive, 5th Floor  
P.O. Box 815  
Dartmouth, Nova Scotia  
B2Y 3Z3

#### **CIDN:**

1011 0600001

#### **Central Registry:**

8390/2200-14

### **PROCEEDINGS OF THE HABITAT 94 CONFERENCE**

#### **Objective:**

To support production of bilingual proceedings of the Habitat 94 conference - a joint conference between the Canadian Institute of Planners and the International Federation of Housing and Planning.

#### **Division:**

Research Division  
Centre for Future Studies in  
Housing and Living  
Environments

#### **Contractor:**

Canadian Institute of Planners  
541 Sussex Drive  
2nd Floor  
Ottawa, Ontario  
K1N 6Z6

#### **CIDN:**

1295 0200002

#### **Central Registry:**

6855-2-3

## **ROLE OF HOUSING IN AN ENABLING SOCIETY**

### **Objective:**

Analyze and discuss the various roles housing policy can play in the context of the enabling society model. Propose various ways housing policies can be used to promote the philosophy of the enabling society while elaborating on CMHC's role in this regard.

### **Division:**

Strategic Planning and Policy  
Development Division

### **Contractor:**

Ekos Research Associates  
275 Sparks Street  
Suite 801  
Ottawa, Ontario  
K1R 7X9

### **CIDN:**

1006 0100001

### **Central Registry:**

6865-11

## **TRI-COUNTRY CONFERENCE 1994**

### **Objective:**

To support the production of 12 policy research papers addressing the broader influences and possible directions for housing policy in each of Canada, the U.S. and the U.K. and to ensure the effective exchange of these research findings among academics and practitioners from each of the three countries.

### **Division:**

Research Division  
Centre for Future Studies in  
Housing and Living  
Environments

### **Contractor:**

Fannie Mae  
Office of Housing Policy  
Research  
3900 Wisconsin Avenue N.W.  
Washington, D.C.  
20016

### **CIDN:**

1206 0200001

### **Central Registry:**

6855-1



### ACCESSIBILITÉ ET ABORDABILITÉ DU LOGEMENT : RAPPORT GÉNÉRAL.

*Ottawa : Société canadienne d'hypothèques et de logement, 1994.*

En juin 1992, les ministres de l'habitation ont chargé la Société canadienne d'hypothèques et de logement (SCHL) d'étudier les obstacles à l'accessibilité et à l'abordabilité du logement au Canada. Au cours de l'an passé, on a exécuté un programme de recherche en deux parties conçu pour améliorer la base d'information disponible. Conformément à l'organisation du programme de recherche, le présent rapport est divisé en deux parties principales : la première partie traite de l'accessibilité du logement, et la deuxième partie de l'abordabilité du logement. Chaque partie commence par une introduction suivie d'une présentation des projets de recherche sous forme de résumé.

L'élément financement du logement des coûts hypothécaires a été traité sous le titre «accessibilité du logement», alors que le prix du logement a été abordé sous le titre «abordabilité du logement». La recherche sur l'abordabilité du logement a été concentrée sur les six facteurs de l'aspect «offre» qui sont considérés comme un élément contribuant aux coûts élevés de logement ou qui empêchent la production de logements plus abordables. Ils comprennent : les finances municipales; le processus de la réglementation; les normes de qualité; l'efficacité de l'industrie; l'établissement des prix des propriétés; et l'économie nationale.

NOTE: Also available in English under the title: *Housing Access and Affordability: Overview Report.*

### HOUSING ACCESS AND AFFORDABILITY: OVERVIEW REPORT.

*Ottawa: Canada Mortgage and Housing Corporation, 1994.*

In June 1992, Ministers of Housing instructed Canada Mortgage and Housing Corporation (CMHC) to look into barriers to housing accessibility and affordability in Canada. Over the past year, a two-part research program, designed to improve the information base available on these critical questions, was carried out. In keeping with the organization of the research program, this report is divided into two major parts: Part I deals with housing accessibility, and Part II with housing affordability. Each part begins with an introduction to the topic, followed by a presentation of the research project or projects in summary form.

The housing finance component of mortgage costs was treated under the heading "housing accessibility", while the housing price component of mortgage costs was considered under "housing affordability". The research on housing affordability focused on six "supply side" factors which are viewed to contribute to high housing costs or which prevent the development of more affordable housing. They include: municipal finance; regulatory processes; quality standards; industry efficiency; property pricing; and national economy.

NOTE: Aussi disponible en français sous le titre : *Accessibilité et abordabilité du logement : rapport général.*

**LAND TRUSTS AND SELF-HELP: REPORT OF A CMHC/CHRA  
SYMPOSIUM, DECEMBER 3-4, 1993.**

*Ottawa: Canada Mortgage and Housing Corporation, 1994.*

This report is the result of a two-day symposium, sponsored by Canada Mortgage and Housing Corporation (CMHC) and the Canadian Housing and Renewal Association (CHRA) on December 3 and 4, 1993. The aim of the symposium was to explore ways in which "self-help" housing and land trusts could be used to create more affordable housing. The focus was on multiple housing in urban settings in Canada. The document consists of the five papers presented at the symposium and a final report. The final report provides summaries of the presentations as well as a synopsis of symposium discussions. An assessment of land trusts and self-help housing, and how they might be applied in tackling problems of housing affordability, is also presented.

**Ongoing Projects/Projets en cours**

**A GUIDE TO IMPROVING  
HOUSING AFFORDABILITY**

**Objective:**

The development of a prototype issue of a guide that will enable housing producers and providers to review, examine and assess proven development, design and financing strategies that improve housing affordability with the objective of implementing them.

**Division:**

Research Division

**Contractor:**

McGill University  
815 Sherbrooke Street West  
Montreal, Quebec  
H3A 2K6

**CIDN:**

0889 0200002

**Central Registry:**

6610-9

**SHELTER AFFORDABILITY  
AND HOUSING NEEDS OF  
CANADIAN FOOD BANK  
CLIENTS**

**Objective:**

Will examine the relationship between food banks and housing, and produce a profile of the typical food bank client in Winnipeg, Manitoba, in regard to shelter needs and other socio-demographic variables.

**Division:**

Research Division  
External Research Program

**Contractor:**

Professor Jeff Sloan  
Manitoba Nursing Research  
Institute  
Faculty of Nursing  
University of Manitoba  
Winnipeg, Manitoba  
R3T 2N2

**CIDN:**

1099 0200001

**Central Registry:**

6585-S087



## Ongoing Projects/Projets en cours

### A COMPARATIVE STUDY OF IMMIGRANT HOUSING IN MONTREAL AND TORONTO

#### Objective:

To address the linkages between housing, neighbourhoods and social networks among visible minority immigrant groups living in metropolitan Montreal and Toronto.

#### Division:

Research Division  
External Research Program

#### Contractor:

Brian K. Ray  
McGill University  
805 Sherbrooke Street West  
Montreal, Quebec  
H3A 2K6

#### CIDN:

1283 0200001

#### Central Registry:

6585-R069

### IMMIGRANT HOUSING CHOICES, 1991

#### Objective:

To update and extend the study of immigrant housing choices recently completed for CMHC. The study will describe differences between the housing choices of immigrants and non-immigrants in 1991 and compare findings to those of the previous study. 1986 and 1991 census data will be used

to trace changes over time in the behaviour of individual immigrant cohorts. Through focus groups and statistical analysis of 1991 census data, the research will attempt to identify factors underlying observed differences between immigrants and non-immigrants.

#### Division:

Research Division

#### Contractor:

Lapointe Consulting Inc.  
311 Markham Street  
Toronto, Ontario  
M6G 2K8

#### CIDN:

0854 0201001  
0854 0200002

#### Central Registry:

6620-24

### SURVEY OF ISSUES AFFECTING RACIAL AND ETHNIC MINORITIES IN THE HOUSING SECTOR

#### Objective:

The purpose of this research is to explore housing issues affecting racial and ethnic minorities and to identify issues, problems, and gaps in housing services available through conducting a survey of government and non-government organizations serving the community.

The views of these organizations will be sought as to the activities that CMHC could potentially engage in that would complement those already being undertaken.

In addition, to promote possibilities for information exchange, information will be compiled for a directory of governmental and non-governmental agencies and organizations working in this area.

#### Division:

Strategic Planning and Policy Development Division

#### Contractor:

Ekos Research Associates Inc.  
275 Sparks Street  
Suite 801  
Ottawa, Ontario  
K1R 7X9

#### CIDN:

1067 0100001

#### Central Registry:

6865-10

## Ongoing Projects/Projets en cours

### CANADA'S BUILDING INDUSTRY - ARCHITECTURE, HOUSING WOOD PRODUCTS AND EQUIPMENT

#### Objective:

To produce a 1500 word article on Canada's building industry which will showcase Canada's building industry in China.

#### Division:

International Relations Division

#### Contractor:

Scanada Consultants Limited  
446 Reynolds Street  
Oakville, Ontario  
L6J 3M4

#### CIDN:

1384 0900001

#### Central Registry:

4380-26

### CANADIAN HOUSING PRODUCTS AND SERVICES FOR CHINA

#### Objective:

To identify potential opportunities for Canadian manufactured products and services for the Chinese housing market.

#### Division:

Housing Innovation Division

#### Contractor:

McGill University  
School of Architecture  
815 Sherbrooke Street West  
Montreal, Quebec  
H3A 2K6

#### CIDN:

1263 0300001

#### Central Registry:

4380-21

### EXPORT CAPABILITIES AND STRATEGIES OF CANADA'S COMPETITORS IN INTERNATIONAL HOUSING MARKETS

#### Objective:

To examine the housing and renovation activities of foreign firms in the following markets: United States; Mexico; Caribbean; Central and South America; Western Europe; Central Europe; Eastern Europe; Japan; China; Asian countries; South Africa; and the Middle East.

#### Division:

International Relations Division

#### Contractor:

Scanada Consultants Limited  
446 Reynolds Street  
Oakville, Ontario  
L6J 3M4

#### CIDN:

1369 0900001

#### Central Registry:

4380-24

### EXPORTABLE HOUSE BUILDING AND REHABILITATION TECHNOLOGIES

#### Objective:

To undertake an analysis and develop a presentation of exportable Canadian housing technologies.

#### Division:

International Relations Division

#### Contractor:

Scanada Consultants Limited  
436 MacLaren Street  
Ottawa, Ontario  
K2P 0M8

#### CIDN:

1293 0900006  
1294 0900001

#### Central Registry:

4380-21/22

### **INVESTIGATION INTO COMMERCIAL OPPORTUNITIES FOR CANADA'S HOUSING SECTOR IN CENTRAL AND EASTERN EUROPE**

#### **Objective:**

To provide a primer to describe the essential features of Central and Eastern European markets, identify housing needs, provide guidance on how to strategically approach Central and Eastern European markets, indicate Canadian and foreign resources that are potentially available to Canadian providers of housing technology.

#### **Division:**

International Relations  
Division

#### **Contractor:**

Canadian Urban Institute  
2nd Floor  
West Tower City Hall  
Toronto, Ontario  
M5H 2N1

#### **CIDN:**

0955 0900002

#### **Central Registry:**

4380-16

### **SURVEY OF MAJOR HOUSING EXPORTS**

#### **Objective:**

To carry out a telephone survey and analysis of one hundred of Canada's largest exporters of housing.

#### **Division:**

International Relations  
Division

#### **Contractor:**

Decima Research  
One Eglinton Avenue East  
Suite 700  
Toronto, Ontario  
M4P 3A1

#### **CIDN:**

1337 0900001

#### **Central Registry:**

4380-11-5

### **NEXT DOOR TO THE FACTORY: HOUSING PEOPLE IN MODERN INDUSTRIAL PARKS.**

*Prepared by Jill Grant with Darrell Joudrey and Peter Klynstra. Prepared under the External Research Program, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.*

The study considers the suitability of housing people in modern industrial parks. Proceeding from the assumption that increasing urban density improves urban efficiency, the research investigates the option of congregating residential uses near job centres in clean industrial areas. A case study of Burnside Industrial Park, the largest industrial area in the Maritimes, illustrates some of the opportunities and constraints discovered.

With good design, planners can congregate residential uses with industry. The case study indicates, however, that risks from traffic, noise, odours, and hazardous materials make industrial areas unsafe for many potential residents. While able-bodied adult households with members working in the industrial park could find the area appropriate, other types of households would not meet their needs in the park. Residents' interests in moving into industrial areas will depend upon their present commuting time, the quality of housing available in the industrial area, and the options available elsewhere in the community. In the case study context, people have too many attractive housing choices in the community to make industrial areas attractive. Larger communities where people commute long distances to affordable housing may find that industrial areas seem suitable to potential residents.

Despite the findings of the case study, the authors conclude that infilling residential uses in clean industrial areas may prove a suitable option for some communities. Communities interested in pursuing the option need to adopt regulatory mechanisms that allow flexibility to adapt to new circumstances. Overlay zones, special districts, conditional use permits, and performance zoning provide tools for redeveloping portions of the urban environment. Communities that plan for re-use will avoid finding themselves with outdated assets. The authors also suggest that communities promote the use of mobile units and modular construction (for quick assembly). The need to plan for adaptive re-use of facilities and co-use of spaces in the rapidly changing economic climate of the 21st century is emphasized. Companies and communities that can adjust quickly to new market requirements and opportunities will prove more viable.



## Ongoing Projects/Projets en cours

### ALTERNATIVES FOR THE PLANNING AND DESIGN OF HOUSING IN ST. JOHN'S

**Objective:**

To explore alternatives for the planning and design of new low and medium density housing in St. John's, Newfoundland.

**Division:**

Research Division  
External Research Program

**Contractor:**

Robert Mellin, Architect  
89 Barnes Road  
St. John's, Newfoundland  
A1C 3X5

**CIDN:**

1095 0200001

**Central Registry:**

6585-M108

### 4D ENVIRONMENTAL SIMULATION TO EVALUATE DESIGN ALTERNATIVES FOR MEDIUM DENSITY HOUSING

**Objective:**

To generate and evaluate planning and design alternatives using ACV technology - Calgary.

**Division:**

Research Division  
External Research Program

**Contractor:**

Richard Perron  
Dept. of Landscape  
Architecture  
University of Manitoba  
Winnipeg, Manitoba  
R3T 2N2

**CIDN:**

1279 0200001

**Central Registry:**

6585-P060

### HABITATION ET FLEXIBILITÉ AU CANADA : BILAN 1991

**Objet :**

Construire une grille d'analyse permettant de dresser une typologie des solutions apportées par les architectes; et faire un rapport de synthèse proposant un bilan global des perspectives de résolution du problème de flexibilité dans un projet d'habitation.

**Division :**

Division de la recherche  
Programme de subventions  
de recherche

**Contractant :**

Annie Chelin  
5780, rue Hutchison  
Outremont (Québec)  
H2V 4B6

**NIC :**

0911 0200001

**Numéro de la gestion des documents :**

6565-C058

### IEA FUTURE BUILDINGS FORUM

**Objective:**

To write a report for the IEA Future Buildings forum.

**Division:**

Research Division

**Contractor:**

Facing the Future  
15003 - 56th Avenue  
Edmonton, Alberta  
T6H 5B2

**CIDN:**

1061 0200005

**Central Registry:**

6713-8

### PASSIVE SOLAR HOUSE DESIGNS FOR CANADA

**Objective:**

To identify relevant literature and design tools, analyze and interpret data in order to update existing monograph on passive solar house designs.

**Division:**

Research Division

**Contractor:**

Leslie Jones & Associates Ltd.  
319 Catherine Street  
Ottawa, Ontario  
K1R 5T4

**CIDN:**

1241 0200001

**Central Registry:**

6770-10

**PLANNING FOR TELEWORK  
AND HOME-BASED  
EMPLOYMENT; A CANADIAN  
SURVEY ON INTEGRATING  
WORK INTO RESIDENTIAL  
ENVIRONMENT**

**Objective:**

Investigate the role of the home and neighbourhood for teleworkers and home-based workers; and the implications for the planning and design of homes and communities.

**Division:**

Research Division  
Centre for Future Studies in  
Housing and Living  
Environments

**Contractor:**

University of British Columbia  
Research Services  
2194 Health Sciences Mall  
Room 323  
Vancouver, British Columbia  
V6T 1Z3

**CIDN:**

1010 0200001

Central Registry:

6855-2

**VILLE ST-LAURENT  
REVISITED: WARTIME  
HOUSING AND  
ARCHITECTURAL CHANGE,  
1942-92**

**Objective:**

To study a solution offered by the wartime housing effort and to test its lessons for today's housing problems.

**Division:**

Research Division  
External Research Program

**Contractor:**

Dr. Annmarie Adams  
School of Architecture  
McGill University  
815 Sherbrooke Street West  
Montreal, Quebec  
H3A 2K6

**CIDN:**

1083 0200001

**Central Registry:**

6585-A042

**VIRTUAL REALITY AND ITS  
POTENTIAL USES IN THE  
HOUSING SECTOR**

**Objective:**

To identify opportunities for virtual reality technology in the planning and designing of sustainable communities and accessible housing for the disabled and seniors.

**Division:**

Research Division  
Centre for Future Studies in  
Housing and Living  
Environments  
Experts in Residence Program

**Contractor:**

John Thurston  
26 Standford Private  
Ottawa, Ontario  
K1T 3J3

**CIDN:**

1015 0202003

**Central Registry:**

6855-5

# HOUSING FORECASTING AND DEMAND/ PRÉVISION ET DEMANDE DE LOGEMENTS

## Ongoing Projects/Projets en cours

### CHILD NOMADS: SHARED PARENTING AND DUAL RESIDENCE

**Objective:**

A literature review, an empirical study and an analysis of the findings and assessment of the overall magnitude and possible longer term implications of joint custody agreements both in terms of potential housing demand and the spatial and design considerations.

**Division:**

Research Division  
Centre for Future Studies in  
Housing and Living  
Environments  
Experts in Residence Program

**Contractor:**

Mr. Martin Wexler  
45, rue Chesterfield  
Westmount, Quebec  
H3Y 2M4

**CIDN:**

1015 0201001

**Central Registry:**

6855-5

### HOUSING DEMAND AND CONSUMER PREFERENCES IN THE 1990's

**Objective:**

To identify in more detail each target group's goals and regional housing preferences for the 1990's.

**Division:**

Market Analysis Centre

**Contractor:**

Environics Research Group  
Limited  
45 Charles Street East  
Toronto, Ontario  
M4Y 1S2

**CIDN:**

0995 0100001

**Central Registry:**

6905-10

### PHD MODEL - NON-FAMILY BREAKDOWN

**Objective:**

To modify the software for the potential housing demand (PHD) projection model to allow for disaggregation of non-family households into component household types and implementation of other desirable enhancements.

**Division:**

Research Division

**Contractor:**

Tetrad Computer Applications  
Limited  
1445 West Georgia Street  
Vancouver, British Columbia  
V6G 2T3

**CIDN:**

1344 0200001

**Central Registry:**

6620-10

### DEMOGRAPHIC CHANGE IN THE HOUSING MARKET IN CANADA

#### Objective:

To deepen our understanding of demographic effects on housing markets and to identify future policy problems that might emerge in the ownership and rental markets.

#### Division:

Research Division  
External Research Program

#### Contractor:

Mr. Arthur Hosios  
University of Toronto  
Institute for Policy Analysis  
707 - 140 St. George Street  
Toronto, Ontario  
M5S 1A1

#### CIDN:

1091 0200001

#### Central Registry:

6585-H055-1

### ÉVOLUTION DE LA DEMANDE DE LOGEMENT ET STABILITÉ DES PRIX IMPLICITES DES ATTRIBUTS RÉSIDENTIELS; UNE COMPARAISON 1986-1991

#### Objet :

La recherche consiste à étudier les modifications survenues entre 1986 et 1991 dans la structure de la

demande de logement des ménages de la région de Québec. Le modèle hédonique «RÉSIVALU», mis au point il y a quelques années, a permis de tracer un portrait détaillé des préférences des ménages en matière de logement pour la période 1986-1987, et ce pour l'ensemble des sous-marchés de propriétaires-occupants sur le territoire de la Communauté urbaine de Québec (CUQ). Cette étude aura recours à un système d'information géographique en voie d'élaboration pour le territoire de la CUQ qui s'intégrera au modèle hédonique RÉSIVALU à régression multiple. Elle comparera la carte des préférences des ménages de 1986 à celle de 1991 et examinera les changements qui ont marqué les prix implicites des attributs des prix des maisons. L'étude permettra en outre de mesurer les déplacements fiscaux entre municipalités de la CUQ, les modifications des structures socio-économiques ainsi que l'étalement urbain.

#### Division :

Division de la recherche  
Programme de subventions  
de recherche

#### Contractant :

François Desrosiers  
Professeur titulaire  
Université Laval  
Faculté des sciences de  
l'administration  
Sainte-Foy (Québec)  
G1K 7P4

#### NIC :

1275 0200001

#### Numéro de la gestion des documents :

6585-D033-5

### MATCHING BUYERS AND SELLERS IN THE RESALE HOUSING MARKET

#### Objective:

Matching buyers and sellers  
in the resale housing market.

#### Division:

Research Division  
External Research Program

#### Contractor:

Mr. Christopher T. Ragan  
Department of Economics  
McGill University  
855 Sherbrooke Street West  
Montreal, Quebec  
H3A 2T7

#### CIDN:

1098 0200001

#### Central Registry:

6585-R065



## Ongoing Projects/Projets en cours

### INFRASTRUCTURE COSTS ASSOCIATED WITH CONVENTIONAL AND ALTERNATIVE DEVELOPMENT PATTERNS

**Objective:**

To carry out the study entitled: "Infrastructure Costs Associated with Conventional and Alternative Development Patterns".

**Division:**

Research Division

**Contractor:**

Essiambre Phillips Desjardins  
1900 City Park Drive  
Suite 206  
Gloucester, Ontario  
K1J 1A3

**CIDN:**

1193 0200001

**Central Registry:**

6665-21

### INFRASTRUCTURE RESOURCE NETWORK STUDY - AMERICAN EXPERIENCE

**Objective:**

To gather information on four American information services to local governments to complement the infrastructure resource network study.

**Division:**

Research Division

**Contractor:**

Intergovernmental Committee  
on Urban and Regional  
Research  
150 Eglinton Avenue East  
Toronto, Ontario  
M4P 1E8

**CIDN:**

1059 0200003

**Central Registry:**

0195-2-0

### INNOVATIVE INFRASTRUCTURE: MUNICIPAL EXPERIENCES

**Objective:**

To present a very brief historical outline of the evolution of the design of the dominant Canadian municipal infrastructure systems and materials, to provide an examination of the technical causes for a range of failures in some of these systems; to place into context an identification of technologies to repair these failing systems; and to carry out a survey to identify durable repair technologies and to provide case studies on a number of examples which have been locally acceptable and affordable.

**Division:**

Research Division

**Contractor:**

REIC Ltd.  
15010 Yonge Street  
Aurora, Ontario  
L4G 1M6

**CIDN:**

1219 0200001

**Central Registry:**

6715-8

### PUBLIC-PRIVATE PARTNERSHIPS IN URBAN INFRASTRUCTURE

**Objective:**

This study will document some innovative experiences of private sector involvement in urban infrastructure delivery and financing and assess its impact on costs for the infrastructure service, the quantity and quality of the service, on housing affordability and on the housing sector at large including the impacts on developers, new home buyers and existing homeowners.

**Division:**

Research Division

**Contractor:**

IBI Group  
230 Richmond Street West  
5th Floor  
Toronto, Ontario  
M5W 1V6

**CIDN:**

1358 0200001

**Central Registry:**

6600-28

**CONFERENCE HIGHLIGHTS: INNOVATIVE HOUSING '93: A WORLD  
CONFERENCE ON ADVANCED HOUSING FOR ENERGY-EFFICIENCY AND  
ENVIRONMENTAL RESPONSIBILITY, JUNE 21-25, 1993, VANCOUVER,  
BRITISH COLUMBIA, CANADA.**

*Ottawa: Natural Resources Canada: Canada Mortgage and Housing Corporation, 1994.*

The objectives of Innovative Housing '93 were to create an international forum for the promotion of more energy-efficiency and environmentally responsible housing and to provide opportunities for an exchange of ideas among researchers, planners, designers, builders and program managers from throughout North America, Europe and the Pacific Rim.

Innovative Housing '93 offered a comprehensive five-day program, encompassing plenary and parallel sessions, poster displays and exhibits, evening social events, workshops and tours. Five plenary sessions were held, one on each day. The parallel sessions were organized into four streams. The "Technology Innovations" sessions were held early in the conference and then led to the "Applications and Demonstrations" stream. The "Planning and Design Innovations" sessions and the "Program" sessions ran through the week. The parallel sessions included talks by invited speakers providing overviews of new developments or significant projects, presentations of accepted papers, and brief presentations of posters. This publication presents the highlights of the plenary sessions, parallel sessions and of related activities of the conference.

NOTE: Aussi disponible en français sous le titre : *Faits saillants de la conférence : l'habitation à la fine pointe 1993 : une conférence mondiale sur l'habitation performante axée sur l'efficacité énergétique et la responsabilité en matière environnementale, 21 au 25 juin 1993, Vancouver (Colombie-Britannique), Canada.*

## INNOVATION AND HOUSING/ INNOVATION ET HABITATION

**CONFERENCE PROCEEDINGS: INNOVATIVE HOUSING '93: A WORLD  
CONFERENCE ON ADVANCED HOUSING FOR ENERGY-EFFICIENCY AND  
ENVIRONMENTAL RESPONSIBILITY, JUNE 21-25, 1993, VANCOUVER,  
BRITISH COLUMBIA, CANADA = COMPTES RENDUS DE LA CONFÉRENCE  
L'HABITATION À LA FINE POINTE '93 : UNE CONFÉRENCE MONDIALE AU  
SUJET DE L'HABITATION PERFORMANTE AXÉE SUR L'EFFICACITÉ  
ÉNERGÉTIQUE ET LA RESPONSABILITÉ EN MATIÈRE  
ENVIRONNEMENTALE, 21-25 JUIN 1993, VANCOUVER  
(COLOMBIE-BRITANNIQUE), CANADA.**

*Ottawa: Natural Resources Canada: Canada Mortgage and Housing Corporation,  
1994, 4 volumes.*

NOTE: Available from: Natural Resources Canada, 580 Booth Street, Ottawa ON  
K1A 0E4, Tel.: (613) 943-2259; Fax (613) 996-9416. Price: \$214.00 for the  
set; \$65.00 for each volume.

This publication consists of a set of four volumes which contain the Proceedings of  
the Innovative Housing '93 Conference, including plenary talks, papers and posters:

- Technology Innovations . . . . . Volume 1
- Planning & Design Innovations . . . . . Volume 2
- Applications & Demonstrations . . . . . Volume 3
- Programs . . . . . Volume 4

Where authors did not submit a paper for publication, brief summaries have  
been prepared from the audio tapes of their presentation and have been included  
in these Proceedings. Some posters or poster graphics were only available in large  
format at the Conference's poster display session, and were not available for small  
scale production in these Proceedings. Materials are published in the language in  
which they were written, either English or French: translations are provided for  
papers submitted by authors from Canadian federal government agencies.

NOTE: Bilingual/bilingue.



## **DEUX DÉCENNIES D'INNOVATION EN TECHNOLOGIE DU BÂTIMENT RÉSIDENTIEL DE 1946 À 1965.**

*Rapport préparé par Clayton Research Associates Ltd. et D.G. Wetherell and Associates Ltd. pour le compte de la Division de l'innovation dans l'habitation, Société canadienne d'hypothèques et de logement. Ottawa, SCHL, 1994.*

Ce rapport documente et examine l'évolution de la technologie, de la conception et de la planification du bâtiment résidentiel au Canada de 1945 jusque vers le milieu des années 60, et fait ressortir le rôle des agences fédérales dans ce processus.

Le rapport est divisé en trois parties. La première traite brièvement du contexte de la politique canadienne en matière d'habitation et passe en revue les agences fédérales importantes et les autres groupes ayant joué un rôle dans la recherche et le développement de la technologie du bâtiment après 1946. On met en évidence les vastes activités de recherche, de développement et de transfert technologique effectuées à partir d'une revue du Code national du bâtiment, des normes de construction et du développement d'une série importante de maisons de démonstration/d'expérimentation construites par l'Association canadienne des constructeurs d'habitations en coopération avec la SCHL et le CNRC. La deuxième examine un éventail d'initiatives spécifiques en technologie du bâtiment telles que la préfabrication, les systèmes d'évacuation des eaux usées et la construction de maisons en hiver. Enfin, la troisième passe en revue les impacts des agences fédérales sur l'urbanisme et la conception des maisons d'après-guerre au Canada.

NOTE: Also available in English under the title: *Two Decades of Innovation in Housing Technology, 1946-1965.*

## **FAITS SAILLANTS DE LA CONFÉRENCE : L'HABITATION À LA FINE POINTE 1993 : UNE CONFÉRENCE MONDIALE SUR L'HABITATION PERFORMANTE AXÉE SUR L'EFFICACITÉ ÉNERGÉTIQUE ET LA RESPONSABILITÉ EN MATIÈRE ENVIRONNEMENTALE, 21 AU 25 JUIN 1993, VANCOUVER (COLOMBIE-BRITANNIQUE), CANADA.**

*Ottawa : Ressources naturelles Canada : Société canadienne d'hypothèques et de logement, 1994.*

L'habitation à la fine pointe 1993 avait pour but de créer un lieu de rencontre international pour faire la promotion des habitations plus éconergétiques et plus écologiques et pour permettre aux chercheurs, planificateurs, concepteurs, constructeurs et gestionnaires de programmes de tous les coins de l'Amérique du Nord, de l'Europe et des pays du Pacifique d'échanger des idées.

L'habitation à la fine pointe 1993 a offert un vaste programme d'une durée de cinq jours comprenant des séances plénières et parallèles, la présentation d'affiches et d'expositions, des activités sociales en soirée ainsi que des ateliers et des visites guidées. Cinq séances plénières ont été tenues à raison d'une par jour tandis que les séances parallèles ont été groupées sous quatre grands thèmes. Les séances portant sur les «Innovations technologiques» ont eu lieu au début de la conférence et ont été suivies des séances sur les «Innovations en planification et en conception». Tout au long de la semaine, les participants ont pu assister aux séances intitulées «Applications et démonstrations» et «Programmes». Dans le cadre de ces séances parallèles, des conférenciers invités ont pris la parole pour donner des exposés sommaires sur les innovations et les projets d'importance, ont présenté les communications acceptées et décrit brièvement les affiches. Cette publication présente les faits saillants des séances plénières, des séances parallèles et des activités connexes de la conférence.

NOTE: Also available in English under the title: *Conference Highlights: Innovative Housing '93: A World Conference on Advanced Housing for Energy-Efficiency and Environmental Responsibility, June 21-25, 1993, Vancouver, British Columbia, Canada.*



# INNOVATION AND HOUSING/ INNOVATION ET HABITATION

## TWO DECADES OF INNOVATION IN HOUSING TECHNOLOGY, 1946-1965.

*Prepared by Clayton Research Associates Ltd. and D.G. Wetherell and Associates Ltd. Prepared for Housing Innovation Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.*

This report documents and examines the evolution of housing technology, design and planning in Canada during the period from 1946 until the mid 1960s, and highlights the role of federal agencies in this process.

The report is divided into three sections. Part I provides a brief discussion of the context of Canadian housing policy and an overview of important federal agencies and other groups which played a part in research and development in building technology after 1946. It also contains a discussion of broad efforts in research and development and technology transfer by looking at the National Building Code and building standards, and the development of an important series of demonstration/test houses built by the National House Builders' Association in co-operation with CMHC and NRC. Part II examines a range of specific initiatives in building technology such as prefabrication, sewage systems and winter building. Part III looks at the impact of federal agencies on postwar town planning and house design in Canada.

NOTE: Aussi disponible en français sous le titre : *Deux décennies d'innovation en technologie du bâtiment résidentiel de 1946 à 1965.*

## Ongoing Projects/Projets en cours

### DEVELOPMENT OF COMMERCIALLY VIABLE CONCEPTS AND A DESIGN FOR A RESIDENTIAL FRAMING SYSTEM FOR A MONOCOQUE HOUSE

#### Objective:

The development of commercially viable engineered structural concepts and a design for a monocoque framing system for residential structures which can be adopted by home builders for the construction of houses on unstable soils; monitoring of the demonstration of the system in a house construction project and a report of the results of the work for CMHC.

#### Division:

Housing Innovation Division

#### Contractor:

Gower, Yeung & Associates  
Ltd.  
615 Eighth Street  
Suite 201  
New Westminster, British  
Columbia  
V3M 3S3

#### CIDN:

0657 0300001

#### Central Registry:

6796-4

### MONOCOQUE CAVITY RIGID PANEL FOR WALL AND ROOF CONSTRUCTION

#### Objective:

To finalize the design of monocoque wall and roof panels and the locking joint assemblies for these panels, and produce prototype wall and roof panels for testing.

#### Division:

Research Division  
Housing Technology  
Incentives Program

#### Contractor:

Ray-Co-Tech Inc.  
30, rue Des Frenes  
Bromont (Québec)  
J0E 1L0

#### CIDN:

1270 0200001

#### Central Registry:

6521-27/93

## LEAD/PLOMB

### Ongoing Projects/Projets en cours

#### PROJECT EVALUATION OF CLEAN-UP OF LEAD DUST IN RENOVATED HOUSES

##### Objective:

To carry out an evaluation  
of clean-up of lead dust in  
renovated houses.

##### Division:

Research Division

##### Contractor:

Pinchin Environmental  
Consultants  
5749 Coopers Avenue  
Mississauga, Ontario  
L4Z 1R9

##### CIDN:

1173 0200002

##### Central Registry:

6790-12

## Ongoing Projects/Projets en cours

### **ASSESSMENT OF THE CAPACITY TO USE STOCHASTIC MODEL IN BUILDING LIFE-CYCLE COSTING**

#### **Objective:**

The study is an evaluation of how well easily collected, financial data reported on audited statements and supporting documentation about housing that is targeted towards low and moderate income households can be used in conjunction with well known probabilistic models to estimate long term maintenance, repair and replacement costs.

#### **Division:**

Research Division  
External Research Program

#### **Contractor:**

Aron Spector  
Ark Research Associates  
165 Hinton Avenue North  
Ottawa, Ontario  
K1Y 0Z9

#### **CIDN:**

1100 0200001

#### **Central Registry:**

6585-S008-7

### **PERFORM A CRITICAL REVIEW AND MARKET NEEDS EVALUATION FOR THE CMHC LIFE-CYCLE COSTING SOFTWARE**

#### **Objective:**

Perform a technical and market analysis of the life-cycle costing software; conduct a review of characteristics and industry requirements for a modeling and information system for low-rise housing.

#### **Division:**

Research Division

#### **Contractor:**

Richard Kadulski  
Architect  
#208 - 1280 Seymour Street  
Vancouver, British Columbia  
V6B 3N9

#### **CIDN:**

1064 0200002

#### **Central Registry:**

0240/N1-5

#### **A LITERATURE AND CODE REVIEW ON DAYLIGHTING IN HOUSING**

**Objective:**

To review the literature and the National Building Code of Canada on the treatment of daylighting as a factor in planning and design of housing in northern latitude countries.

**Division:**

Research Division

**Contractor:**

James Love Consultants  
1737 2nd Avenue N.W.  
Calgary, Alberta  
T2N 0G3

**CIDN:**

1214 1100003

**Central Registry:**

6717-18

#### **REVIEW OF LIGHTING AND HUMAN HEALTH**

**Objective:**

To review the biological effects of light (from the ultraviolet to the infrared) with emphasis on the effects (biochemical, physiological, etc.) on human health.

**Division:**

Research Division

**Contractor:**

Dr. Benjamin Rusak &  
Associates  
1976 Beech Street  
Halifax, Nova Scotia  
B3H 4B8

**CIDN:**

1214 1100001

**Central Registry:**

6717-18



## MANUFACTURED HOUSING/HABITATIONS USINÉES

### Ongoing Projects/Projets en cours

#### **A STRUCTURAL ANALYSIS OF THE CANADIAN AND INTERNATIONAL MANUFACTURED HOUSING INDUSTRY**

##### **Objective:**

To enhance the international competitiveness of the Canadian Manufactured Housing Industry.

##### **Division:**

Research Division

##### **Contractor:**

Canadian Manufactured  
Housing Association  
150 Laurier Avenue West  
Suite 200  
Ottawa, Ontario  
K1P 5J4

##### **CIDN:**

1290 0200001

##### **Central Registry:**

0190-78-10

#### **L'HUMIDITÉ DANS LES MAISONS À OSSATURE DE BOIS AU CANADA: PROBLÈMES, RECHERCHE ET PRATIQUES DE MISE EN OEUVRE DE 1975 À 1991.**

*Préparé par Morrison Hershfield Limited. Préparé pour la Division de la recherche, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1992.*

L'habitation de faible hauteur s'est en un siècle développée au Canada grâce à une vaste gamme de produits et techniques de construction axée sur l'utilisation du bois. De 1975 à 1991, d'appréciables progrès ont permis de relever, de saisir et de solutionner les problèmes d'humidité des maisons à ossature de bois. Ce rapport fait la synthèse des recherches sur l'humidité effectuées par plusieurs organismes publics, dont la SCHL, de concert avec l'industrie de la construction et de la rénovation d'habitations. Le rapport livre une évaluation des travaux relevés et les place dans une perspective historique très vaste, à long terme. Il cerne également les orientations que les chercheurs canadiens poursuivent actuellement dans le but de réaliser des habitations à ossature de bois éconergétiques et exemptes d'ennuis.

NOTE: Also available in English under the title: *Moisture in Canadian Wood-Frame House Construction: Problems, Research and Practice from 1976 to 1991.*

#### **MOISTURE IN CANADIAN WOOD-FRAME HOUSE CONSTRUCTION: PROBLEMS, RESEARCH AND PRACTICE FROM 1975 TO 1991.**

*Prepared by Morrison Hershfield Limited. Prepared for Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1992.*

Canadian low-rise housing has evolved over a 100-year period using a wide range of timber-based construction products and building practices. During the period 1975 to 1991, significant advances were made in identifying, understanding and solving moisture problems in wood-frame houses. This report synthesizes the moisture-related work carried out through several public agencies including CMHC, in concert with the house construction and retrofit industries. The report provides an assessment of the work and places it into a broad, longer-term, historical perspective. It also identifies current directions which the Canadian research community is now pursuing to achieve low-energy, problem-free, timber-frame housing.

NOTE: Aussi disponible en français sous le titre : *L'Humidité dans les maisons à ossature de bois au Canada : problèmes, recherche et pratiques de mise en oeuvre de 1975 à 1991.*

## Ongoing Projects/Projets en cours

### **COST/BENEFIT STUDY OF DRY LUMBER**

#### **Objective:**

To carry out a cost/benefit impact study of the Atlantic New Home Warranty mandatory requirements for dry lumber in Atlantic Canada housing construction.

#### **Division:**

Housing Innovation Division

#### **Contractor:**

ADI Limited  
Suite 407, 1133 Regent Street  
Box 44, Station "A"  
Fredericton, New Brunswick  
E3B 4Y2

#### **CIDN:**

1209 0300001

#### **Central Registry:**

6506-19

### **ENHANCE THE EMPTIED COMPUTER PROGRAM AND DEVELOP A MANUAL**

#### **Objective:**

To develop a tutorial manual on the EMPTIED computer program that will describe the method of calculation and provide illustrative examples of the application of the EMPTIED program in predicting moisture accumulation in walls and condensation on windows. Guidelines for considering the effects of solar radiation and frost action will be included.

#### **Division:**

Housing Innovation Division

#### **Contractor:**

Handegord and Company  
Limited  
185 Strathcona Road S.W.  
Calgary, Alberta  
T3H 1X9

#### **CIDN:**

1107 0300001

1107 0301001

#### **Central Registry:**

6793-24-4

### **REVIEW OF THE LUMBER MOISTURE CONTENT COST/BENEFIT ANALYSIS**

#### **Objective:**

To provide an expert review and written comments on the Lumber Moisture Content Cost/Benefit Analysis Report.

#### **Division:**

Housing Innovation Division

#### **Contractor:**

DMO Associates  
1019 Buckskin Way  
Gloucester, Ontario  
K1C 2Y8

#### **CIDN:**

1233 0300003

#### **Central Registry:**

6503-1

### **WIND TUNNEL EXPERIMENTS SIMULATING WIND DRIVEN RAIN**

#### **Objective:**

Study the density of rain impact for three common building shapes and with three architectural features that are designed to minimize rain impact on the buildings.

#### **Division:**

Housing Innovation Division

#### **Contractor:**

The Boundary Layer Wind  
Tunnel Laboratory  
University of Western Ontario  
Room 271  
Stevenson Lawson Building  
London, Ontario  
N6A 5B8

#### **CIDN:**

1123 0304001

1123 0300001

#### **Central Registry:**

6793-21-3

# MORTGAGES AND HOUSING FINANCE/ HYPOTHÈQUES ET LOGEMENT - FINANCES

## Ongoing Projects/Projets en cours

### FEASIBILITY STUDY ON A SURVEY OF LENDERS

#### Objective:

To determine the feasibility of developing a comprehensive survey of lenders with regard to their mortgage portfolio.

#### Division:

Market Analysis Centre

#### Contractor:

Mary McDonough Research  
and Associates  
151 Yonge Street, Suite 1210  
P.O. Box 7  
Toronto, Ontario  
M5C 2W7

#### CIDN:

1350 1000001

#### Central Registry:

6905-19

### FUNDING FOR REVERSE MORTGAGES - ASSESSMENT OF CONCEPTUAL FUNDING ALTERNATIVES

#### Objective:

A report identifying and analyzing how reverse mortgages could be funded in a viable, credible manner from both a number of individual funding sources as well as across the range of such funding sources.

#### Division:

Strategic Planning and Policy  
Development Division

#### Contractor:

Ernst & Young Management  
Consultants  
Ernst & Young Tower  
Toronto-Dominion Centre  
P.O. Box 251  
Toronto, Ontario  
M5K 1J7

#### CIDN:

0999 0100001

#### Central Registry:

6625-27

### MODEL AND FORECAST RESIDENTIAL MORTGAGE CLAIMS

#### Objective:

To model and forecast residential mortgage insurance claims on existing single family homes.

#### Division:

Market Analysis Centre

#### Contractor:

Park Econometrics Inc.  
165 Bourbon Street  
Ottawa, Ontario  
K1V 9J8

#### CIDN:

1300 1000003

#### Central Registry:

6905-5-1

### THE RESIDENTIAL MORTGAGE SURVEY

#### Objective:

Subscription to the residential mortgage survey which aims to know more about the consumer's attitudes and behaviour toward mortgage debt. The survey will focus on the behaviour and awareness, attitudes, and the current and future needs of consumers.

#### Division:

Market Analysis Centre

#### Contractor:

Clayton Research Associates  
Limited  
1580 Kingston Road  
Scarborough, Ontario  
M1N 1S2

#### CIDN:

1336 1000001

#### Central Registry:

5012-25



# MUNICIPAL GOVERNMENT AND FINANCE/ ADMINISTRATION MUNICIPALE ET FINANCES

## Ongoing Projects/Projets en cours

### **HANDBOOK ON MUNICIPAL ENVIRONMENTAL PRICING**

#### **Objective:**

To produce the ICLEI handbook on municipal environmental pricing which will provide a blueprint for reforming municipal economic instruments.

#### **Division:**

International Relations  
Division

#### **Contractor:**

International Council for  
Local Environmental  
Initiatives  
City Hall, East Tower  
8th Floor  
Toronto, Ontario  
M5H 2N2

#### **CIDN:**

1252 0900001

#### **Central Registry:**

4350-15

### **ANISHINABEK HOUSING ADMINISTRATION STUDY FOR THE UNION OF ONTARIO INDIANS.**

*Prepared by Barry Silver, Jennifer Arnott. Prepared under the External Research Program, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1993 (i.e. 1994).*

The Union of Ontario Indians undertook an extensive survey of member First Nations communities regarding their current approach to and long range goals of First Nation housing administration. The study provides an assessment of current policies and considers future requirements and needs as identified by First Nations. This information leads directly to the determination of three possible models for the delivery of First Nation housing programming based on the principles of First Nation autonomy, and accountability, as well as supporting regional coordination and long-term stable policy development.

An important conclusion of this study is that First Nation housing administration requires first and foremost adequate financial support. Increasing demands coupled with the fact that the base DIAND capital funding allocation has not increased since 1984 have substantially over-burdened First Nation capacity to both deliver and administer housing. Following the on reserve National Housing Review it is hoped that the question of resourcing will be clarified and it is at this time that First Nations will be in a realistic position to determine the most appropriate delivery of housing programming.

### **Ongoing Projets/Projets en cours**

#### **ABORIGINAL HOUSING NEEDS**

##### **Objective:**

To provide a profile of the housing characteristics and needs of aboriginal peoples using data from the 1991 Census and post-censal Aboriginal Peoples Survey (APS).

##### **Division:**

Research Division

##### **Contractor:**

ARK Research Associates  
165 Hinton Avenue North  
Ottawa, Ontario  
K1Y 0Z9

##### **CIDN:**

1045 0201002

##### **Central Registry:**

6620-2

#### **ANALYSIS OF MIGRATION AND RESIDENTIAL MOBILITY PATTERNS AMONG CANADA'S ABORIGINAL POPULATION**

##### **Objective:**

To undertake a study examining both the migration and mobility patterns among aboriginal groups. The study will explore the relationship with the urbanization and housing conditions of the aboriginal population.

##### **Division:**

Research Division  
Centre for Future Studies in  
Housing and Living  
Environments

##### **Contractor:**

Royal Commission on  
Aboriginal Peoples  
427 Laurier Avenue, 6th Floor  
P.O. Box 1993, Station "B"  
Ottawa, Ontario  
K1P 1B2

##### **CIDN:**

1171 0200001

##### **Central Registry:**

6855-26

## NATIVE PEOPLE/AUTOCHTONES

### ASSESSMENT OF REQUIREMENTS TO ESTABLISH FIRST NATIONS BUILDING INSPECTION UNITS

#### Objective:

Determine the financial and human resources needed to establish a system of First Nations housing inspection units across Canada, and identify the legal, regulatory, or other barriers that must be addressed if the system is to be put in place.

#### Division:

Strategic Planning and Policy Development Division

#### Contractor:

Assembly of First Nations Housing Programs  
55 Murray Street, 5th Floor  
Ottawa, Ontario  
K1N 5M3

#### CIDN:

1159 0100001

#### Central Registry:

4044-2

### THE HOUSING CRISIS IN CANADA'S INUIT COMMUNITIES

#### Objective:

To conduct research on housing issues relevant to Inuit people.

#### Division:

Strategic Planning and Policy Development Division

#### Contractor:

Inuit Tapirisat of Canada  
Suite 510  
170 Laurier Avenue West  
Ottawa, Ontario  
K1P 5V5

#### CIDN:

1196 0100001

#### Central Registry:

4044-2

### HOUSING FOR THE MÉTIS PEOPLE: A NATIONAL STUDY ON THE STATE OF MÉTIS HOUSING

#### Objective:

Examine the state of housing for Métis people in the Métis homeland.

#### Division:

Strategic Planning and Policy Development Division

#### Contractor:

Métis National Council  
558 Whitewood Crescent  
Saskatoon, Saskatchewan  
S7J 4L1

#### CIDN:

1158 0100001

#### Central Registry:

4044-2

### INCREASING SELF-SUFFICIENCY: NEW FINANCING AND INVESTMENT OPPORTUNITIES FOR URBAN AND RURAL NATIVE HOUSING AUTHORITIES

#### Objective:

Conduct research on options for new directions in Aboriginal housing, and to increase the self-sufficiency of native housing authorities through new financing and investment opportunities.

#### Division:

Strategic Planning and Policy Development Division

#### Contractor:

Native Council of Canada  
384 Bank Street, 2nd Floor  
Ottawa, Ontario  
K2P 1V4

#### CIDN:

1203 0100001

#### Central Registry:

4044-2

## **INUIT WOMEN AND HOUSING ISSUES**

### **Objective:**

To conduct research on housing issues relevant to Inuit women. The results of this research will be translated into Inuktitut, published and distributed throughout the North as a means of promoting public awareness and discussion of the issues.

### **Division:**

Strategic Planning and Policy  
Development Division

### **Contractor:**

Pauktuutit - Inuit Women's  
Association  
200 Elgin Street  
Suite 804  
Ottawa, Ontario  
K2P 1L5

### **CIDN:**

1180 0100001

### **Central Registry:**

4044-2

## **SECOND STAGE HOUSING FOR ABORIGINAL WOMEN AND FRAMEWORK TO MEASURE THE IMPACT OF HOUSING CONDITIONS ON WELL-BEING OF ABORIGINAL WOMEN AND THEIR CHILDREN**

### **Objective:**

This two-part project has the following objectives:

- (a) Establish the need for "second-stage" housing for Aboriginal women (and their children) and develop a transferable community-based model for use across Canada.
- (b) Develop a framework to measure the impact of housing conditions on the well-being of Aboriginal women and their children (i.e., health, social impacts including family violence and sexual abuse, self-esteem, etc.).

### **Division:**

Strategic Planning and Policy  
Development Division

### **Contractor:**

Native Women's Association of  
Canada  
9 Melrose Avenue  
Ottawa, Ontario  
K1N 5P3

### **CIDN:**

1152 0100001

### **Central Registry:**

4044-2



## THE NORTH/LE NORD

### Ongoing Projects/Projets en cours

#### **FROSTLINE - 2ND EDITION**

**Objective:**

To provide editorial content for the second edition of Frostline, the North Committee newsletter.

**Division:**

Housing Innovation Division

**Contractor:**

Drerup-Armstrong Limited  
P.O. Box 130  
Carp, Ontario  
K0E 1L0

**CIDN:**

1371 0300001

**Central Registry:**

0345-74

#### **NORTH FILE FACT SHEETS**

**Objective:**

To produce fact sheets on northern building technology camera-ready for production.

**Division:**

Housing Innovation Division

**Contractor:**

Scanada Consultants Limited  
446 Reynolds Street  
Oakville, Ontario  
L6J 3M4

**CIDN:**

0515 0300002

**Central Registry:**

6796-4-1

### VALIDATION OF RIMT TECHNOLOGY

#### Objective:

RIMT (Reflectometric Impulse Measurement Technique) is a non-destructive test method which may be useful in examining the condition of reinforcing tendons in post-tensioned concrete. This project aims to determine whether the RIMT method is able to detect the existence of corrosion defects anywhere along the cable; the degree of severity of the corrosion; the nature of the corrosion; the number of corroding wires in a strand; the location of the defect along the tendon; the presence and location of water in the cable; and the existence of discontinuities in the protective grease cover of the tendon.

#### Division:

Research Division

#### Contractor:

John A. Bickley Associates  
Limited  
27 Summerhill Avenue  
Toronto, Ontario  
M4T 1A9

#### CIDN:

0933 0200001

#### Central Registry:

6711-8

### VALIDATION OF THE REFLECTOMETRIC IMPULSE MEASUREMENT OF TECHNOLOGY (RIMT)

#### Objective:

To assist CMHC in the validation of the reflectometric impulse measurement technology (RIMT) by evaluating the results of the work and providing a review of the final report.

#### Division:

Research Division

#### Contractor:

Dr. G.G. Litvan  
248 Range Road  
Ottawa, Ontario  
K1N 8J8

#### CIDN:

0933 0200003

#### Central Registry:

6711-8

### VERIFICATION OF RIMT EQUIPMENT

#### Objective:

To assist J.A. Bickley Associates in the development of a research plan for the validation of RIMT technologies.

#### Division:

Research Division

#### Contractor:

Cordec International Inc.  
1390 Prince of Wales Drive  
Suite 103  
Ottawa, Ontario  
K2C 3N6

#### CIDN:

0933 0200002

#### Central Registry:

6711-8

## PLAYGROUNDS/JEUX, TERRAINS DE

### Ongoing Projects/Projets en cours

#### UPDATING OF PLAYGROUND PUBLICATIONS AND SLIDE PRESENTATIONS FROM CHILDREN'S ENVIRONMENTS ADVISORY SERVICE

##### Objective:

Updating of playground publications and slides, with revisions in the areas of design, pictures, concepts and overall content to reflect changes in playground design standards and include greater emphasis on barrier-free design and injury prevention.

##### Division:

Housing Innovation Division

##### Contractor:

Betty Dion Enterprises Ltd.  
458 Melbourne Avenue  
Ottawa, Ontario  
K2A 1W3

##### CIDN:

1114 0300001

##### Central Registry:

6545-6

**RECAPTURING OF UNEARNED INCREMENTS, LAND TAXES AND  
BETTERMENT LEVIES.**

*Prepared by Mohammed Qadeer and Andrejs Skaburskis. Ottawa: Canada Mortgage and Housing Corporation, 1993.*

This report reviews theories of recapturing gains in land values through land taxes, betterment levies and exactions. It outlines Canada's experience with land taxes, development charges and various property taxes. Recapture measures, such as the recent shift to market value assessment in Ontario, Saskatchewan and Manitoba, and the Ontario Land Speculation tax are examined. The report also analyzes recapture measures in the United States, Britain and Australia and discusses their impacts on tax revenues. Developer exactions are reviewed. It is hypothesized that by focusing on developers instead of landowners, the new measures have bypassed some of the political and administrative resistance to the policy of recapturing land value increases.

The study has found little basis to be enthusiastic about general purpose recapture taxes or levies, be those site value or graded land taxes or betterment levies. For contemporary urban land markets, exactions, development charges and special district assessment or betterment levies targeted for a specific value-adding stage in the development cycle are more promising recapture instruments. Sharpening these tools and making them more efficient, fair and administrable should be the objective of the land policies in contemporary Canada.



## REGULATORY REFORM/ RÉFORME DE LA RÉGLEMENTATION

### Completed Reports/Rapports terminés

#### **DÉMOLITION PRÉCÉDANT L'OBTENTION DU PERMIS - O'BEE'S STEAM BATH : ÉTUDE DE CAS : RAPPORT FINAL = PRE-PERMIT DEMOLITION - O'BEE'S STEAM BATH: CASE STUDY.**

*Abordabilité et choix toujours (A.C.T.) projet de simplification du processus d'approbation / Winnipeg Housing Rehabilitation Corporation, Winnipeg (Manitoba). Préparé par Energy Pathways Inc. Préparé pour la Fédération canadienne des municipalités, l'Association canadienne des constructeurs d'habitations, l'Association canadienne d'habitation et de rénovation urbaine et la Société canadienne d'hypothèques et de logement. Ottawa : Les Associations : La Fédération : La Société, 1992.*

La "Winnipeg Housing Rehabilitation Corporation" (WRHC), en collaboration avec Logement Manitoba et la ville de Winnipeg, a élaboré et mis en oeuvre une méthode de démolition précédant l'obtention du permis de construire qui facilite les projets de remise en état. Cette méthode prévoit l'établissement des dessins de construction et la démolition sélective simultanément plutôt que successivement. L'approbation du permis de construire vient après la démolition sélective.

La remise en état du O'Bees Steam Bath datant de 80 ans et sa conversion en ensemble résidentiel de 12 appartements constituent le premier projet à utiliser la méthode de la démolition précédant l'approbation du permis. On a constaté qu'effectuer la démolition plus tôt au cours du processus d'approbation permettait :

- de découvrir des caractéristiques inconnues du bâtiment, comme les changements d'élévation, et ainsi de réduire le besoin de modifier les plans après l'approbation;
- de diminuer le délai entre l'approbation du permis de construire et les travaux de construction;
- d'obtenir, aux termes de contrats de construction, des soumissions plus justes, ce qui diminue la nécessité d'établir un fonds de prévoyance dans les estimations.

Ces changements apportés au processus d'approbation ont été couronnés de résultats tellement positifs que l'on tentera d'utiliser la méthode de la démolition avant permis pour tous les projets de la WRHC en 1992.

NOTE: Bilingue/bilingual.

#### **ENTENTE NORMALISÉE DE LOTISSEMENT : ÉTUDE DE CAS = STANDARDIZED SUBDIVISION AGREEMENT: CASE STUDY.**

*Abordabilité et choix toujours (A.C.T.) projet d'étude de cas / Cantons d'Ernestown, de Kingston et de Pittsburgh (Ontario). Préparé par Energy Pathways Inc. Préparé pour la Fédération canadienne des municipalités, l'Association canadienne des constructeurs d'habitations, l'Association canadienne d'habitation et de rénovation urbaine et la Société canadienne d'hypothèques et de logement. Ottawa : Les Associations : La Fédération : La Société, 1994.*

Cette étude de cas de l'A.C.T. décrit un projet entrepris par les cantons d'Ernestown, de Kingston et de Pittsburgh dans le but de normaliser l'entente de lotissement utilisée par les trois cantons. Avant d'en arriver à une entente normalisée, chaque canton avait sa propre entente de lotissement et ses propres exigences particulières, notamment pour les cautions de lotissement et pour les cautions de continuation.

L'entente normalisée de lotissement comprend les principaux éléments suivants :

- Procédures et exigences pour conclure une entente de lotissement, demander un permis de construction, introduire graduellement le projet et obtenir l'approbation des services municipaux.
- Exigences pour la construction et la réparation des installations municipales, notamment les routes et trottoirs, l'éclairage, l'aqueduc, et les égouts sanitaires et pluviaux.
- Obligations juridiques et financières des propriétaires et de la municipalité.
- Exigences de prélèvements pour les frais de promotion.
- Disposition pour l'octroi de terrains aux fins municipales, notamment les parcs municipaux et autres installations de loisirs.

NOTE: Bilingue/bilingual.

**PRE-PERMIT DEMOLITION – O'BEE'S STEAM BATH: CASE STUDY =  
DÉMOLITION PRÉCÉDANT L'OBTENTION DU PERMIS – O'BEE'S STEAM  
BATH : ÉTUDE DE CAS : RAPPORT FINAL.**

*Affordability and Choice Today (A.C.T.) Streamlined Approval Process Project / Winnipeg Housing Rehabilitation Corporation, Winnipeg Manitoba. Prepared by Energy Pathways Inc. Prepared for the Federation of Canadian Municipalities, Canadian Home Builders' Association, Canadian Housing and Renewal Association and Canada Mortgage and Housing Corporation. Ottawa: The Associations: The Federation: The Corporation, 1992.*

The Winnipeg Housing Rehabilitation Corporation (WHRC), in cooperation with Manitoba Housing and the City of Winnipeg, have developed and implemented a pre-permit demolition approach to facilitate rehabilitation projects. This approach involves preparing construction drawings and performing selective demolition concurrently rather than sequentially. Building permit approvals follow the selective demolition.

The conversion and rehabilitation of the 80-year-old O'Bee's Steam Bath into a housing complex of 12 apartments was the first project to use the pre-permit demolition approach. It was found that, by performing the demolition earlier on in the approval process,

- unknown building features, such as changes in elevation, were uncovered, minimizing the need to change construction plans after approval;
- the time between building permit approval and construction was reduced; and
- tenders for construction contracts were more accurate, reducing the need for contingency sums in estimates.

The results of these changes in the approval process were so positive that all 1992 WHRC projects will attempt to use the pre-permit demolition approach.

NOTE: Bilingual/bilingue.

## **REGULATORY REFORM/ RÉFORME DE LA RÉGLEMENTATION**

### **PRISE EN COMPTE DU CONSTRUCTEUR RÉSIDENTIEL AGRÉÉ DANS LE PROCESSUS D'APPROBATION : ÉTUDE DE CAS = RECOGNIZING THE CERTIFIED RESIDENTIAL BUILDER IN THE APPROVAL PROCESS : CASE STUDY.**

*Abordabilité et choix toujours (A.C.T.) projet de simplification du processus d'approbation / Association canadienne des constructeurs d'habitations - Colombie-Britannique, Surrey (Colombie-Britannique). Préparé par Energy Pathways Inc. Préparé pour la Fédération canadienne des municipalités, l'Association canadienne des constructeurs d'habitations, l'Association canadienne d'habitation et de rénovation urbaine et la Société canadienne d'hypothèques et de logement. Ottawa : Les Associations : La Fédération : La Société, 1994.*

Ces dernières années, la construction résidentielle dans la région métropolitaine de Vancouver en Colombie-Britannique a connu une croissance phénoménale. Cette augmentation de la demande en logements a beaucoup mobilisé les ressources du secteur de la construction et des autorités municipales d'approbation, ce qui a entraîné des retards de plusieurs semaines pour l'obtention de permis de construction. Ces problèmes se sont révélés particulièrement graves dans la municipalité de Surrey, une collectivité qui s'étend rapidement au sud de Vancouver et qui dominait la province au chapitre des mises en chantier de maisons individuelles en 1992.

Afin de régler ces problèmes, on a établi un comité d'étude composé de représentants de l'Association canadienne des constructeurs d'habitations - Colombie-Britannique (ACCH-C.-B.), du Programme de garantie des maisons neuves (PGMN) de la Colombie-Britannique et du Yukon et du service des permis de construction et d'exploitation de la municipalité de Surrey. Les parties ont approuvé un document de 20 pages, "Affordability and Choice Today: Modified Approvals Process Guidelines and Documents", qui précise les lignes de conduite et les méthodes relatives à la mise en oeuvre d'un programme pour le processus d'approbation modifié (PAM). Ce rapport, qui comprend des lignes directrices modèles, vise à fournir une orientation aux municipalités et aux associations locales de l'ACCH qui souhaitent rationaliser le processus municipal d'approbation pour les constructeurs résidentiels agréés (CRA).

Afin de ne pas accorder un traitement de faveur à un groupe particulier de constructeurs, la municipalité de Surrey a décidé de ne pas adopter de processus municipal d'approbation distinct qui «accélérerait» les approbations touchant les constructeurs résidentiels agréés. Toutefois, la municipalité de Surrey a réexaminé et modifié son processus d'approbation afin de mieux servir tous les constructeurs.

NOTE: Bilingue/bilingual.

### **RECOGNIZING THE CERTIFIED RESIDENTIAL BUILDER IN THE APPROVAL PROCESS: CASE STUDY = PRISE EN COMPTE DU CONSTRUCTEUR RÉSIDENTIEL AGRÉÉ DANS LE PROCESSUS D'APPROBATION : ÉTUDE DE CAS.**

*Affordability and Choice Today (A.C.T.) Streamlined Approval Process Project / Canadian Home Builders' Association of British Columbia, Surrey, British Columbia. Prepared by Energy Pathways Inc. Prepared for the Federation of Canadian Municipalities, Canadian Home Builders' Association, Canadian Housing and Renewal Association and Canada Mortgage and Housing Corporation. Ottawa: The Associations: The Federation: The Corporation, 1994.*



In recent years, the Greater Vancouver area in British Columbia has experienced tremendous growth in residential construction activity. This increase in housing demand has severely taxed the resources of both the building industry and local municipal approval authorities, leading to delays of more than several weeks in obtaining a building permit. These problems were particularly acute in Surrey, a rapidly growing community south of Vancouver which, in 1992, had the greatest number of single-family starts in the province.

To address these concerns, a working committee comprising representatives of the Canadian Home Builders' Association of British Columbia (CHBA-BC), the New Home Warranty Program of B.C. and Yukon (NHWP) and the Municipality of Surrey's Permits and Licences Department was established. Consensus was reached on a 20-page document, "Affordability and Choice Today: Modified Approvals Process Guidelines and Documents", that sets out policy and procedures for the implementation of a Modified Approvals Process (MAP) Program. The report, which includes model guidelines, is intended to provide direction to municipalities and local associations of the CHBA that wish to streamline the municipal approval process for Certified Residential Builders (CRBs).

Because it preferred not to recognize the qualifications of builders with a CRB designation, the Municipality of Surrey decided not to adopt a separate municipal approval process that would "fast-track" approval for those builders. However, the Municipality of Surrey did re-examine and modify its approval process in order to serve all builders better.

NOTE: Bilingual/bilingue.

#### **STANDARDIZED SUBDIVISION AGREEMENT: CASE STUDY = ENTENTE NORMALISÉE DE LOTISSEMENT : ÉTUDE DE CAS.**

*Affordability and Choice Today (A.C.T.) Case Study Project / Townships of Ernestown, Kingston and Pittsburgh, Ontario. Prepared by Energy Pathways Inc. Prepared for the Federation of Canadian Municipalities, Canadian Home Builders' Association, Canadian Housing and Renewal Association and Canada Mortgage and Housing Corporation. Ottawa: The Associations: The Federation: The Corporation, 1994.*

This A.C.T. case study describes a project undertaken by the Ontario Townships of Ernestown, Kingston and Pittsburgh to develop a standardized subdivision agreement for use by all three municipalities. Before the adoption of a standardized agreement, each township had its own subdivision agreement and its own requirements for particulars, such as subdivision securities and guaranteed maintenance.

The Standardized Subdivision Agreement contains the following principal components:

- Procedures and requirements for entering into a subdivision agreement, applying for a building permit, phasing development and obtaining approval for municipal services.
- Requirements for the construction and repair of municipal services, such as roads, sidewalks, streetlights, and water, sanitary, and storm-sewer systems.
- Legal and financial obligations of the property owner(s) and the municipality.
- Requirements for development cost charges.
- Provision for the granting of land for municipal purposes, such as a municipal park or other recreational facility.

NOTE: Bilingual/bilingue.



## Ongoing Projects/Projets en cours

### L'APPROCHE HÉDONIQUE ET LE MARCHÉ RÉSIDENTIEL LOCATIF : UNE APPLICATION À LA RÉGION DU QUÉBEC

**Objet :**

La recherche consiste à appliquer l'approche hédonique au marché résidentiel locatif de la région de Québec, dans le but d'établir, à l'aide des données du marché, le prix implicite des attributs résidentiels qui composent le niveau des loyers et partant, les valeurs immobilières.

**Division :**

Division de la recherche  
Programme de subventions  
de recherche

**Contractant :**

Monsieur François  
Des Rosiers  
Faculté des sciences de  
l'administration  
Université Laval  
Ste-Foy (Québec)  
G1K 7P4

**NIC :**

0920 0200001

**Numéro de la gestion des  
documents :**

6585/D033-3

### IMPACT D'UN PROGRAMME PARAMUNICIPAL SUR LE MARCHÉ DU LOGEMENT LOCATIF

**Objet :**

Déterminer si l'intervention  
PALL a eu des impacts sur le  
marché locatif avoisinant.

**Division :**

Division de la recherche  
Programme de subventions  
de recherche

**Contractant :**

Luba Serge  
29, rue Easton  
Montréal (Québec)  
H4X 1K9

**NIC :**

1287 0200001

**Numéro de la gestion des  
documents :**

6585-S084-1

### TENANT MANAGEMENT OF A ROOMING HOUSE

**Objective:**

To develop knowledge and  
expertise in the tenant  
management approach,  
particularly in the private  
rental market, and inform  
interested public or private  
rental market planners or  
proprietors.

**Division:**

Research Division  
External Research Program

**Contractor:**

Mr. Harry MacKay  
Social Research Consultant  
and Associates  
1 - 88 Marlborough Avenue  
Ottawa, Ontario  
K1N 8E9

**CIDN:**

1093 0200001

**Central Registry:**

6585-M103

### VERIFICATION OF THE RENTAL MARKET UNIVERSE IN CALGARY, LETHBRIDGE, MEDICINE HAT AND BROOKS

**Objective:**

To carry out the verification of  
the rental market universe in  
Calgary, Lethbridge, Medicine  
Hat, and Brooks, and to  
provide a study of the Calgary  
condominium market.

**Division:**

Research Division

**Contractor:**

Katarina Durech  
208, 2130 17 Street South  
West  
Calgary, Alberta  
T2T 4M4

**CIDN:**

1296 0400006

**Central Registry:**

7100-1

#### **ALTERNATIVE DEVELOPMENT STANDARDS FOR AFFORDABLE HOUSING IN OTTAWA-CARLETON: CASE STUDY = NOUVELLES NORMES D'AMÉNAGEMENT DE LOGEMENTS ABORDABLES À OTTAWA-CARLETON.**

*Affordability and Choice Today (A.C.T.) Demonstration Project / Planning and Property Department, Regional Municipality of Ottawa-Carleton, Ottawa, Ontario. Prepared by Energy Pathways Inc. Prepared for the Federation of Canadian Municipalities, Canadian Home Builders' Association, Canadian Housing and Renewal Association and Canada Mortgage and Housing Corporation. Ottawa: The Associations: The Federation: The Corporation, 1994.*

In November 1991, the Regional Municipality of Ottawa-Carleton was awarded an A.C.T. demonstration project grant to design and test alternative standards for subdivisions. The project team reviewed a variety of zoning and engineering standards to determine their impact on housing cost, maintenance, performance and marketability. A charrette, in which housing and design professionals from across Canada participated, was held to generate and test the feasibility of innovative designs for small houses and lots. In February 1993, the applications for rezoning, the Plan of Subdivision and the site plan were approved by the City of Gloucester Council. A 165-unit demonstration project was built on a five-hectare site in Gloucester, Ontario by Minto Developments Inc.

Initial indicators show that the use of alternative development standards has produced average savings of \$4,000 per unit, even after landscaping costs have been taken into account. A five-year monitoring process to evaluate standards with respect to the project objectives is underway. This process will provide more specific figures for potential cost savings in future developments.

NOTE: Bilingual/bilingue.

#### **NOUVELLES NORMES D'AMÉNAGEMENT DE LOGEMENTS ABORDABLES À OTTAWA-CARLETON : ÉTUDE DE CAS = ALTERNATIVE DEVELOPMENT STANDARDS FOR AFFORDABLE HOUSING IN OTTAWA-CARLETON: CASE STUDY.**

*Abordabilité et choix toujours (A.C.T.) projet de démonstration, Service de l'urbanisme et des biens immobiliers, Municipalité régionale d'Ottawa-Carleton, Ottawa (Ontario). Préparé par Energy Pathways Inc. Préparé pour la Fédération canadienne des municipalités, l'Association canadienne des constructeurs d'habitations, l'Association canadienne d'habitation et de rénovation urbaine et la Société canadienne d'hypothèques et de logement. Ottawa : Les Associations : La Fédération : La Société, 1994.*

En novembre 1991, la Municipalité régionale d'Ottawa-Carleton a obtenu une subvention de projet de démonstration dans le cadre du programme ACT afin de planifier, de concevoir et de vérifier de nouvelles normes d'aménagement touchant le lotissement. L'équipe chargée du projet a examiné diverses normes de zonage et de génie civil afin d'en établir les répercussions sur le coût, l'entretien, le rendement et la qualité marchande des logements. Une charrette, à laquelle des professionnels du logement et de la conception de l'ensemble du Canada ont participé, a été organisée afin de créer des plans innovateurs de maisons et de lots de petite dimension et d'en faire l'essai. En février 1993, des demandes de

## RESIDENTIAL DEVELOPMENT/ AMÉNAGEMENT RÉSIDENTIEL

changement de zonage, un plan de lotissement et un plan d'ensemble ont été approuvés et le conseil de la ville de Gloucester a adopté des modifications à ces règlements. Un projet de démonstration comportant 165 logements a été construit sur un terrain de cinq hectares à Gloucester en Ontario par Minto Developments Inc.

D'après les premiers indicateurs disponibles, compte tenu malgré tout des coûts supplémentaires d'aménagement paysager qu'a nécessité ce projet de démonstration, le recours à de nouvelles normes d'aménagement a permis de réduire les coûts d'environ 4,000 dollars par logement en moyenne. Un processus de suivi quinquennal permettant d'évaluer à quel point les normes contribuent à la réalisation des objectifs du projet est en cours. Ce processus fournira des statistiques plus précises sur les économies réalisables dans les aménagements futurs.

NOTE: Bilingue/bilingual.

### Ongoing Projects/Projets en cours

#### ALTERNATIVE PLANNING APPROACHES

**Objective:**

Prepare a research report entitled "Alternative Planning Approaches" which will review alternative approaches to community planning and design, such as "Neo-Traditional Designs", "Pedestrian Pockets", "Cohousing Communities" and "Eco-Villages".

**Division:**

Research Division

**Contractor:**

Hygeia Consulting Services  
430 Elm Road  
Toronto, Ontario  
M5W 3W7

**CIDN:**

1192 0200001

**Central Registry:**

6665-22

#### THE EXTERNALITIES OF RESIDENTIAL DEVELOPMENT

**Objective:**

Prepare an authoritative paper entitled "The Externalities of Residential Development". The paper shall examine several common housing-related externalities in order to foster a more comprehensive understanding of some of the direct and indirect social, economic and environmental costs/impacts associated with our houses and our communities.

**Division:**

Research Division

**Contractor:**

Sheltair Scientific Limited  
2-3661 West 4th Avenue  
Vancouver, British Columbia  
V6R 1P2

**CIDN:**

0982 0200001

**Central Registry:**

6665-16

#### SUMMARY REPORT ON HOUSING THE NEW FAMILY

**Objective:**

To produce a document that communicates the key findings of a larger research report, as part of the International Year of the Family 1994.

**Division:**

Research Division  
Centre for Future Studies in  
Housing and Living  
Environments

**Contractor:**

Laura Johnson  
374 Sackville Street  
Toronto, Ontario  
M4X 1S5

**CIDN:**

1015 0202002

**Central Registry:**

6855-5



### CANADA POST MOVER INFORMATION

**Objective:**

A research study to make improvements in the timeliness and scope of information on migration flows and mover characteristics.

**Division:**

Market Analysis Centre

**Contractor:**

Canada Post Corporation  
2701 Riverside Drive  
Suite NO175  
Ottawa, Ontario  
K1A 0B1

**CIDN:**

1009 1000001

**Central Registry:**

6905-11

### **FACTORS INFLUENCING RESIDENTIAL MOBILITY AMONG FAMILIES WITH CHILDREN LIVING IN A LOW-INCOME AREA IN WINNIPEG, MANITOBA**

**Objective:**

To understand how low-income families with school-aged children perceive their residential mobility, its causes and consequences.

**Division:**

Research Division  
External Research Program

**Contractor:**

Dr. Nancy C. Higgitt  
Department of Family Studies  
University of Manitoba  
Winnipeg, Manitoba  
R3T 2N2

**CIDN:**

1090 0200001

**Central Registry:**

6585-H061-2



# RESIDENTIAL REHABILITATION/ RÉNOVATION DE LOGEMENTS

## Completed Reports/Rapports terminés

### MÉTHODES DÉ RENOVATION POUR CONSTRUCTIONS À OSSATURE D'ACIER ET PLACAGE DE BRIQUE : ÉTAPE N° 1 : ATTACHES DE BRIQUES.

*Préparé par M.A. Postma et E.F.P. Burnett, Building Engineering Group, University of Waterloo, avec le concours de Trow Consulting Engineers Ltd. Préparé pour la Division de l'innovation dans l'habitation, Société canadienne d'hypothèques et de logement, Ottawa : SCHL, 1992.*

Cette recherche a pour objectif premier d'élaborer diverses stratégies visant le redressement et, par conséquent, la maîtrise ou la prévention des problèmes pour les murs à ossature d'acier-placage de brique (OA-PBr) existants. Le projet a été divisé en cinq étapes :

- 1<sup>re</sup> étape : Étude exploratoire initiale
- 2<sup>e</sup> étape : Assemblage attaches-poteaux
- 3<sup>e</sup> étape : Pénétration des attaches
- 4<sup>e</sup> étape : Panneaux de démonstration
- 5<sup>e</sup> étape : Essais en service

Ce rapport fait état des travaux menés à l'occasion de la 1<sup>re</sup> étape du projet, à savoir l'étude exploratoire initiale.

Le principal objectif de la première étape de ce projet de recherche et développement consistait à déterminer, à démontrer et à évaluer des méthodes permettant d'ajouter des attaches aux bâtiments OA-PBr. Les chercheurs s'intéressaient particulièrement aux méthodes de réparation pouvant être réalisées de l'intérieur. Comme deuxième objectif, lequel touche toutes les méthodes de réparation, les chercheurs veulent mettre au point des méthodes qui permettraient de repérer les poteaux tant de l'intérieur que de l'extérieur.

La valeur relative de chaque méthode de réparation a été évaluée. Il n'existe pas de solution miracle. Chaque méthode a ses avantages et ses désavantages. En outre, chaque situation nécessitant des réparations est unique et peut exiger une solution tout aussi unique. Le présent rapport peut servir à arrêter le choix de la solution. Les tableaux de comparaison ont été conçus pour faciliter l'évaluation des dispositifs d'ancrage complémentaires. Les méthodes de repérage des poteaux d'acier par l'extérieur et par l'intérieur ont été documentées, et on constate qu'il est généralement plus facile de repérer les poteaux par l'intérieur que par l'extérieur. Il existe toutefois des façons de remédier à ce problème courant.

La nature du problème qui entraîne l'ajout de nouvelles attaches (que ce soit un mauvais choix d'attaches, la corrosion ou un mauvais espacement) n'influe pas énormément sur le type d'attache qui doit être choisi. Cependant, le choix du type d'attache et le recours à une méthode par l'intérieur ou par l'extérieur dépendent de la nature et de l'étendue de toutes les réparations requises par le bâtiment. L'effet d'autres déficiences du bâtiment peut être déterminant dans le choix de la méthode. La décision de procéder par l'intérieur ou par l'extérieur dépendra de nombreux facteurs, dont les plus importants sont le coût, l'accessibilité, le temps disponible et le genre de réparation requise. Tout bien considéré, le choix d'une méthode de réparation dépend effectivement de l'état général du bâtiment, des coûts des autres stratégies ainsi que des besoins des propriétaires et des occupants du bâtiment.

NOTE: Also available in English under the title: *Renovation Strategies for Brick Veneer Steel Stud Construction: Task 1: Brick Ties.*

**ASSESSMENT REPAIR  
STRATEGY FOR EXISTING  
BUILDINGS CONSTRUCTED  
WITH MASONRY VENEER  
STEEL STUD WALLS**

**Objective:**

To develop an assessment strategy in four phases for repair of buildings constructed with brick veneer steel stud systems.

**Division:**

Housing Innovation Division

**Contractor:**

T.W.J. Trestain  
573 Durie Street  
Toronto, Ontario  
M6S 3H2

**CIDN:**

0937 0300001

**Central Registry:**

6796-3-8

**ASSESSMENT STRATEGY  
FOR FLAT ROOFS**

**Objective:**

To develop a training program and inspection protocol which can be used by inspectors, building owners, and their maintenance staff.

**Division:**

Housing Innovation Division

**Contractor:**

Public Works and  
Government Services Canada  
Architectural and Engineering  
Services, Res. Dev.  
Sir Charles Tupper Building  
Riverside Drive, Room D-525  
Ottawa, Ontario  
K1A 0M2

**CIDN:**

1318 0300001

**Central Registry:**

6796-20

**LOCAL INDICATORS OF  
RENOVATION SPENDING**

**Objective:**

To carry out a study of local indicators of renovation spending; determine the reliability of current measures of renovation activity at the CMA level; make recommendations for the construction of comprehensive, reliable and timely indicators of renovation activity, and develop the indicators for selected CMAs.

**Division:**

Market Analysis Centre

**Contractor:**

Clayton Research Associates  
Limited  
1580 Kingston Road  
Scarborough, Ontario  
M1N 1S2

**CIDN:**

1234 1000001

**Central Registry:**

6905-17

**MASONRY VENEER STEEL  
STUD RENOVATION  
STRATEGIES**

**Objective:**

To assess repair strategies for brick veneer/steel stud systems.

**Division:**

Housing Innovation Division

**Contractor:**

University of Waterloo  
Building Engineering Group  
Waterloo, Ontario  
N2L 3G1

**CIDN:**

0787 0300001

**Central Registry:**

6796-3-7

**INCUMBENT UPGRADING  
IMPLICATION FOR  
RESIDENTIAL  
REVITALIZATION**

**Objective:**

This study will involve conducting theoretical and empirical research into incumbent upgrading.

**Division:**

Research Division  
External Research Program

**Contractor:**

Ms. Christine Diane McKee  
University of Manitoba  
Department of City Planning  
201 Russell Building  
Winnipeg, Manitoba  
R3T 2N2

**CIDN:**

1094 0200001

**Central Registry:**

6585-M105

## RESIDENTIAL REHABILITATION/ RÉNOVATION DE LOGEMENTS

### NATIONAL RENOVATOR TRAINING PROGRAM (NRTP) MATERIALS DEVELOPMENT

**Objective:**

To produce a NRTP trainers' manual for the CHBA - Canadian Renovators Council and a renovators' resource guide that provides business skills information for a renovation contractor.

**Division:**

Housing Innovation Division

**Contractor:**

Energy Technology Access  
Group Inc.  
2308 Arlington Avenue  
Saskatoon, Saskatchewan  
S7J 3L3

**CIDN:**

1201 0300003

**Central Registry:**

6507-1

### 1994 SURVEY OF HOMEOWNER REPAIR AND RENOVATION EXPENDITURE

**Objective:**

To conduct a survey of homeowner repair and renovation expenditure as a supplement to the March 1994 Labour Force survey.

**Division:**

Market Analysis Centre

**Contractor:**

Statistics Canada  
Census Operations  
Tunney's Pasture  
Ottawa, Ontario  
K1A 0T6

**CIDN:**

1231 1000001  
1231 1001001

**Central Registry:**

7060-1

### PREPARE GUIDELINES FOR THE APPLICATION OF THE NATIONAL BUILDING CODE IN RENOVATION WORK

**Objective:**

To carry out a project to prepare guidelines for the application of the National Building Code in renovation work.

**Division:**

Professional Services and  
Standards Division

**Contractor:**

A.T. Hansen Consulting  
Services  
702 Roanoke Street  
Ottawa, Ontario  
K1K 2G4

**CIDN:**

1327 0300001

**Central Registry:**

6615-17

### IMPROVEMENTS IN ON-SITE WASTEWATER TREATMENT

**Objective:**

To evaluate the performance of household water conservation, in association with an innovative technology for septic tank effluent treatment and nitrogen removal, to provide more cost-effective and reliable on-site wastewater treatment.

**Division:**

Research Division

**Contractor:**

Technical University of Nova Scotia  
Centre for Water Resources Studies  
P.O. Box 1000  
Halifax, Nova Scotia  
B3J 2X4

**CIDN:**

1047 0200001

**Central Registry:**

6785-5

### LOWER COST ALTERNATIVE FOR MUNICIPAL SEWER INSPECTION AND MAINTENANCE

**Objective:**

To reduce subdivision servicing costs by the design, development and testing of a technically sound and innovative structure to replace, at a lower cost, the conventional manhole.

**Division:**

Research Division  
External Research Program

**Contractor:**

Butler Krebs & Associates Inc.  
8616 - 51 Avenue  
Suite 210  
Edmonton, Alberta  
T6E 6E6

**CIDN:**

1274 0200001

**Central Registry:**

6585-K040-1



#### **ENSEMBLE NOUS FAISONS LA DIFFÉRENCE : CRÉER DES QUARTIERS SÛRS = TOGETHER WE'RE MAKING A DIFFERENCE: CREATING SAFE NEIGHBOURHOODS (LNH/NHA 6785).**

*Ottawa : Société canadienne d'hypothèques et de logement, 1994.*

Le programme «Safe Neighbourhood Initiative (SNI)» a été lancé en mars 1991 par la Commission de logement de la communauté urbaine de Toronto (CLCUT). Le programme est centré sur les résidents et fondé sur la collectivité, et il est axé sur trois domaines importants : le développement communautaire, la sécurité directe et les améliorations de l'aménagement. Son objectif est de réduire le crime dans onze collectivités désignées du logement public à Toronto et d'appliquer les leçons tirées de ce programme à d'autres endroits de la CLCUT et à d'autres collectivités résidentielles de l'ensemble du pays.

Les résidents, les propriétaires, les fonctionnaires et d'autres parties concernées par la sécurité dans les quartiers de logement public jugeront cette brochure particulièrement opportune et utile. On y décrit certains des moyens importants grâce auxquels les collectivités SNI ont fait de leurs quartiers des endroits plus sûrs dans lesquels ils vivent et ils travaillent, et on y présente ces réalisations d'une manière qui permet de les interpréter et de les modifier pour les employer dans d'autres collectivités.

NOTE: Bilingue/bilingual.

#### **A STUDY OF THE RELIABILITY OF MEASUREMENT METHODS OF HOUSING AFFORDABILITY PROBLEMS: REVISED FINAL REPORT.**

*Prepared by Ekos Research Associates Inc. Prepared for Program Evaluation Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.*

This study was commissioned to explore apparent affordability problems among residents of social housing projects. Its purpose was to examine the accuracy of responses to questions used in previous surveys, to assess household income and shelter costs, and determine the origin of any systematic inaccuracies. To this end, interviews were conducted with the administrators of 13 social housing projects in Newfoundland, Quebec, Ontario and British Columbia. Two different survey formats were used: one which replicated questions used in past research and one which attempted to collect more detailed information using a matrix of household members and income sources.

Nine different explanations for affordability problem findings, encompassing both "true" and "false" problems, were found. They include income decline not reported; administrative factors; utility payments included in eligibility ratio - not included in RGI calculation; seasonality-utility payments higher than costs allotted by project; rental payment as per survey includes other services - not included in RGI calculation; rent based on current income which is different from the 1992 reported income used in survey calculation; respondent error; rental discrepancy (survey vs. administrative data); and income discrepancy (survey vs. administrative data). Only the first four explanations reflect "true" affordability problems.

The eligibility ratio, which uses the previous month's income, is the best ratio in terms of identifying "true" affordability problems. The "matrix" method of collecting more detailed income data is not recommended.

**TOGETHER WE'RE MAKING A DIFFERENCE: CREATING SAFE  
NEIGHBOURHOODS = ENSEMBLE NOUS FAISONS LA DIFFÉRENCE :  
CRÉER DES QUARTIERS SÛRS (NHA/LNH 6785).**

*Ottawa: Canada Mortgage and Housing Corporation, 1994.*

The Safe Neighbourhood Initiatives (SNI) program was launched in March 1991 by the Metropolitan Toronto Housing Authority (MTHA). The program was resident-centred and community-based, and focused on three key areas: community development, direct security and design improvements. It aimed to reduce crime in eleven designated public housing communities in Toronto, and to apply the lessons learned from this program in all other MTHA locations and other housing communities across the country.

Residents, property owners, public officials and others concerned with security in public housing neighbourhoods will find this booklet particularly timely and useful. It describes some of the important ways in which SNI communities have made communities safer places in which to live and work, and it presents these accomplishments in a manner that allows interpretation and modification for use in other communities.

NOTE: Bilingual/bilingue.

**Ongoing Projects/Projets en cours**

**ANALYSIS OF THE RELATIVE  
COST AND EFFECTIVENESS  
OF SELECTED SOCIAL  
RENTAL HOUSING  
PROGRAMS**

**Objective:**

To assess the effectiveness of selected rental housing programs in addressing the problems of affordability, adequate supply, and housing quality. The study will determine how traditional non-profit supply programs and shelter allowances perform, over time under different market conditions.

**Division:**

Senior Vice-President's Office  
Policy, Research and  
Communications

**Contractor:**

Canadian Housing and  
Renewal Association  
251 Laurier Avenue West  
Suite 304  
Ottawa, Ontario  
K1P 5J6

**CIDN:**

1351 0600001

**Central Registry:**

8745-5

**CREATION OF THE  
LONGITUDINAL  
ADMINISTRATIVE  
DATABASE (LAD) AND  
LINKAGE OF SOCIAL  
HOUSING DATA**

**Objective:**

To create a longitudinal database of Canadians, individuals with their family characteristics over the period from 1982 to 1993; to link information on social housing to the longitudinal database using project name and addresses.

**Division:**

Research Division  
Centre for Future Studies in  
Housing and Living  
Environments

**Contractor:**

Statistics Canada  
26th Floor, RHC  
Tunney's Pasture  
Ottawa, Ontario  
K1A 0T6

**CIDN:**

0895 0200001

**Central Registry:**

6855-9-2

### **DEMONSTRATION STUDY OF RESIDENT PARTICIPATION IN THE FLEMINGDON PARK COMMUNITY**

**Objective:**

To carry out a demonstration study of resident participation in the Flemingdon Park Community.

**Division:**

Strategic Planning and Policy  
Development Division

**Contractor:**

Partners in Equality  
17 Yarmouth Gardens  
Toronto, Ontario  
M6G 1W3

**CIDN:**

1195 0100001

**Central Registry:**

F8655/35-1

### **DEVELOPMENT OF INDICATORS OF QUALITY OF LIFE, HEALTH AND WELL-BEING IN CANADIAN SOCIAL HOUSING**

**Objective:**

To develop indicators of health and well-being which would apply to social housing and could be used in the upcoming CMHC evaluation of its urban social housing programs.

**Division:**

Research Division  
Centre for Future Studies in  
Housing and Living  
Environments

**Contractor:**

Veronica Doyle  
1317 Richardson Street  
Victoria, British Columbia  
V8S 1P6

**CIDN:**

1023 0200003

**Central Registry:**

6855-9-3

### **DOCUMENTATION AND EVALUATION OF THE REDEVELOPMENT OF THE STRATHCONA HEIGHTS PROJECT**

**Objective:**

This project is jointly funded by the City of Ottawa, the Ontario Ministry of Housing and CMHC. Its objective is to document and evaluate the regeneration of the Strathcona Heights social housing project in Ottawa. The regeneration occurred from 1988 to 1994. The project will cover the redevelopment of the site and services, neighbourhood improvement, tenant relocation and selection, acquisition and planning, and tenant participation and public consultation. The final report is expected in February of 1995.

**Division:**

Housing Innovation Division

**Contractor:**

The City of Ottawa  
Dept. of Housing & Property  
300-11 Holland Avenue  
Ottawa, Ontario  
K1Y 4T2

**CIDN:**

1145 0300001

**Central Registry:**

6615-16



### **IMPACT OF MANDATORY SPRINKLERING OF MULTI-UNIT RESIDENTIAL BUILDINGS: FINAL REPORT.**

*Prepared by IBI Group in association with Larden Muniak Consulting Inc. Prepared for Housing Innovation Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1993.*

This report summarizes the investigation of the cost-effectiveness of installing automatic fire sprinklers in new, low-rise and high-rise apartment buildings. The Building Code Assessment Framework, developed under the direction of the Buildings Branch of the Ontario Ministry of Housing, forms the primary tool for carrying out the analysis. This tool assists in the examination of impacts of change to the Building Code as incremental costs and benefits to society as a whole. Evaluation assumes that sprinklers are mandated and is based on incremental costs/savings for construction of all low-rise and high-rise apartment buildings constructed in a single year. The analysis includes the net present value of incremental costs/savings for construction of all high-rise and low-rise apartment buildings erected in a single year and the total annual operating cost/savings to the end of the useful life of those buildings.

The figures suggest that the cost per year-of-life saved for sprinklers in low-rise and high-rise apartment buildings is beyond what society appears willing to pay for safety features. One reason is that the risk of death by fire in recently built apartment buildings is relatively low. Even assuming that, as the buildings age the fire risks will increase, the mean and limiting values of the base-case risk rate are assumed to remain relatively low. With relatively few deaths as a base, the reductions in fatalities and property damage made possible by sprinklers are not great enough to offset the incremental costs for construction and maintenance. The author concludes that by comparison to what society has invested for other life safety practices, it is not cost-effective to make automatic fire sprinklers mandatory for multi-unit residential buildings in Canada.



# SUSTAINABLE DEVELOPMENT/ DÉVELOPPEMENT DURABLE

## Completed Reports/Rapports terminés

### ASSESSMENT OF BUILT PROJECTS FOR SUSTAINABLE COMMUNITIES.

*Prepared by William T. Perks and David R. Van Vliet, Faculty of Environmental Design, University of Calgary. Prepared under the External Research Program, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1993, i.e. 1994.*

Research carried out for this study establishes an extensive knowledge base on progress towards sustainable development being made in Scandinavian urban contexts. Over 30 projects were visited and researched. Interviews with experts and community residents were carried out.

Five (5) of the projects were selected for detailed case studies. These are presented with planning-design data, graphic illustration, and a descriptive-analytical account of each project.

The Scandinavian projects were developed with the intention of experimentation and demonstration. They were initiated by either houseseeker groups, municipal administrations, private builders, or these in partnerships. They were planned around some novel arrangement or other in community organization, and with strong user-participation design. Environmental stewardship roles were also staked out.

A set of over 50 sustainability applications are derived from this investigation. Public policy initiatives and the local community context for sustainability advances are discussed. The discussion addresses new orientations towards sustainability in municipal administration, and in industry orientations to consumers and marketing strategies.

The Scandinavian projects show that small groups of houseseekers and neighbourhood communities can "act locally" on the global environmental crisis. User-participant design of the neighbourhood and housing are key factors.

The study points to the need for a more integrative approach in municipal practices and administrative procedures in Canada if sustainability principles are to be meaningfully incorporated into urban planning and development.

In a second objective, the study examines the potential for transferability to the Canadian context of the Scandinavian experiences. Experts drawn from the Calgary housing and residential delivery system were consulted. Questionnaire surveys and a workshop-focus meeting were employed to obtain the experts' opinions, and to test their receptivity to proposals for change and innovation.

The study concludes with the presentation of a "Concept" scheme and partnership proposal for building a demonstration project in Calgary. The proposal draws on a nine-point set of performance goals for sustainable community planning and design. The implementation process involves houseseeker groups who interact continuously with builders and municipal agencies as user-participants in the design of their community environments.

The proposal stakes out a new positioning for industry in meeting the challenges of housing choice and sustainable development. For the municipality, the proposal implies an eventual re-structuring of how the planning and development process might work in the future.

**CMHC COLLABORATION  
WITH FCM CONCERNING  
THE OECD PROJECT GROUP  
ON THE ECOLOGICAL CITY**

**Objective:**

To produce a draft national overview paper and undertake other activities to represent Canada in relation to the project of the Organization for Economic Cooperation and Development (OECD) entitled "The Ecological City".

**Division:**

International Relations  
Division

**Contractor:**

Federation of Canadian  
Municipalities  
24 Clarence Street  
Ottawa, Ontario  
K1N 5P3

**CIDN:**

1313 0900001

**Central Registry:**

4305-4-13

**THE DEVELOPMENT OF  
ALTERNATIVE SITE PLAN  
FOR THE CMHC NATIONAL  
OFFICE LANDS**

**Objective:**

Using CMHC National Office lands as a case study, this project will develop alternative site plans which respond to the imperatives of sustainable suburban development. The study will assess and document the constraints and impediments to more sustainable subdivision plans.

**Division:**

Research Division  
Centre for Future Studies in  
Housing and Living  
Environments

**Contractor:**

Barry J. Hobin & Assoc.  
Arch. Inc.  
Glebe Chambers  
711 Bank Street  
Ottawa, Ontario  
K1S 3V1

**CIDN:**

1205 0200001

**Central Registry:**

3895-14

**HEALTHY HOUSING  
DEMONSTRATION**

**Objective:**

The construction of a demonstration autonomous house in Toronto in general accordance with the winning housing design in CMHC's healthy housing design competition.

**Division:**

Research Division

**Contractor:**

Liefhebber, Martin Architect  
Inc.  
177 First Avenue  
Toronto, Ontario  
M4M 1X3

**CIDN:**

0779 0202003

**Central Registry:**

6750-5

**OPPORTUNITIES FOR  
ACCELERATING  
IMPLEMENTATION OF  
ENVIRONMENTALLY  
SUSTAINABLE HIGH  
PERFORMANCE HOUSING**

**Objective:**

To review current housing innovations and select five having the greatest potential for positive environmental impact; to assess their advantages and industry readiness to incorporate them into construction practice; to identify and present opportunities, impediments and strategies to bring innovations into mainstream housing.

**Division:**

Research Division  
External Research Program

**Contractor:**

Robert J. Booth  
Hansed Booth Incorporated  
Box 73A, R.R.#1  
Dalkeith, Ontario  
K0B 1E0

**CIDN:**

1271 0200001

**Central Registry:**

6585-B097

## **SUSTAINABLE DEVELOPMENT/ DÉVELOPPEMENT DURABLE**

### **PERFORMANCE MONITORING OF THE VANCOUVER HEALTHY HOUSE**

**Objective:**

To monitor and analyze the performance (energy usage, water consumption and indoor air quality) of CMHC's Vancouver Healthy House at 1616 Gravelly Street East, Vancouver.

**Division:**

Research Division

**Contractor:**

SAR Engineering Ltd.  
8884-15th Avenue  
Burnaby, British Columbia  
V3N 1Y3

**CIDN:**

0779 0203018

**Central Registry:**

6740-5

### **TESTING CONSUMER RECEPTIVITY TO SUSTAINABLE AND MORE AFFORDABLE SUBURB DESIGN IN CALGARY**

**Objective:**

To address the question:  
are Canadian consumers  
(houseseekers, homebuyers)  
receptive to residential  
community design that  
incorporates sustainable  
development principles and  
performance characteristics?

**Division:**

Research Division

**Contractor:**

William T. Perks  
Faculty of Environmental  
Design  
Calgary University  
2500 University Drive, N.W.  
Earth Sciences  
Calgary, Alberta  
T2N 1N4

**CIDN:**

1278 0200001

**Central Registry:**

6585/P011-3

### DEVELOPMENT OF THE SAND BARRIER METHOD OF EXCLUDING TERMITES.

*Prepared by Timothy G. Myles, A. Abdallay, and J. Sisson. Faculty of Forestry, University of Toronto. Prepared under the External Research Program, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.*

Studies were undertaken to evaluate the technical and commercial feasibility of developing sand barriers as a non-toxic method for protecting homes in Canada from subterranean termites. Laboratory studies determined that sand composed of particles in the range of 0.22 to 6.3 mm are effective barriers when at least 50% of the mixture by weight is in the range of 1.4 to 2.88 mm, and no more than 25% is in the range of 0.22 to 1.44 mm, and no more than 50% is in the range of 2.8 to 6.3 mm. Field tests on five potentially commercial products in Ontario had an overall efficacy of 96% after two years. It was concluded that sand barriers at least 10 cm thick could be used for the protection of posts in the ground, as a shallow perimeter barrier around homes, or as a pre-construction, sub-slab application for structures with slab-on-grade construction. However, the cost of retro-fitting full depth installations in existing homes with basement type construction would not be commercially competitive with chemical control methods.



### Completed Reports/Rapports terminés

#### **THE CHANGING CANADIAN METROPOLIS: A PUBLIC POLICY PERSPECTIVE.**

*Edited by Frances Frisken. Toronto, Ont.: The Canadian Urban Institute; Berkeley, Calif.: Institute of Governmental Studies Press, University of California, Berkeley, 1994, 2 volumes.*

NOTE: Available from: Canadian Urban Institute, 100 Queen Street West, 2nd Floor, West Tower, City Hall, Toronto, Ontario M5H 2N1, Tel. (416) 392-0082; Fax: (416) 397-0276. Price: \$44.95 plus \$5.00 postage and handling. GST is included in price.

Students of Canadian urbanism have paid less attention to the influence of public policy on the development and character of urban places than they have to the influence of economic forces, technological change, geography, culture, and language. They also tend to treat large cities in isolation from the metropolitan areas with which their fates are intertwined. In this two-volume study, public policy and metropolitan areas are the principal matters of interest.

Volume One looks at linkages between public policy and changes occurring within or impinging on Canada's system of metropolitan areas and its 25 individual components. It considers changes in the Canadian economy and in the forces that drive it, in the nature of work and workplaces, in the participation of women in the labour force, in the social composition of metropolitan populations, and in public attitudes to the environment.

Volume Two deals with aspects of urban policy making at the federal, provincial, municipal, and (in some areas) metropolitan or regional levels of government. It shows that policies adopted by all levels of government can have important consequences for metropolitan area development and social character, even though the Canadian constitution clearly makes provincial governments responsible for municipal institutions and local services.

NOTE: Aussi disponible en français sous le titre : *La Métropole canadienne en mutation : questions de politique urbaine.*

## LA MÉTROPOLE CANADIENNE EN MUTATION : QUESTIONS DE POLITIQUE URBAINE.

*Sous la direction de Frances Frisken. Toronto, Ont. : Institut urbain de Canada, 1994, 2 volumes.*

NOTE: Disponible à : Institut urbain du Canada, 100 Queen Street West, 2e étage, West Tower, City Hall, Toronto (Ontario) M5H 2N1.  
Tel. : (416) 392-0082; Télécopieur : (416) 397-0276. Prix : 49,95 \$; frais de manutention : 5,00 \$.

Les étudiants en urbanisme au Canada prêtent moins attention à l'influence de la politique d'intérêt public sur l'aménagement et la physionomie des endroits publics qu'à l'influence des forces économiques, du changement technologique, de la géographie, de la culture et de la langue. Ils ont tendance, en outre, à considérer les grandes villes isolément des régions métropolitaines avec lesquelles leur destin est intimement lié. Dans ces deux volumes, on se penche principalement sur la politique d'intérêt public et les régions métropolitaines.

Le volume un examine les liens entre la politique d'intérêt public et les changements qui surviennent au sein du système canadien de régions métropolitaines et de ses 25 composantes, ou qui influent sur celui-ci. Il traite des transformations dans l'économie canadienne et les forces qui l'animent, dans la nature du travail et des milieux de travail, dans la participation des femmes au marché du travail, dans la composition sociale des populations métropolitaines et dans les attitudes du public à l'égard de l'environnement.

Le volume deux porte sur divers aspects de l'élaboration de la politique urbaine aux différents paliers de gouvernement - fédéral, provincial, municipal et (dans certaines régions) métropolitain ou régional. Il montre que les politiques adoptées par les différents paliers de gouvernement peuvent avoir d'importantes répercussions sur l'aménagement et la composition sociale des régions métropolitaines, et ce même si, selon la Constitution canadienne, la compétence en matière d'institutions provinciales et de services locaux ressortit clairement aux gouvernements provinciaux.

NOTE: Also available in English under the title: *The Changing Canadian Metropolis: A Public Policy Perspective.*

## Ongoing Projects/Projets en cours

### LES ENSEMBLES RÉSIDENTIELS ET LA SÉCURITÉ ROUTIÈRE

#### Objet :

La présente recherche porte sur l'étude des rapports entre la forme des milieux résidentiels et la sécurité des déplacements des différents usagers de la route.

#### Division :

Division de la recherche  
Programme de subventions  
de recherche

#### Contractant :

Denise Piché  
École d'architecture  
Université Laval  
Québec (Québec)  
G1K 7P4

#### NIC :

0925 0200001

#### Numéro de la gestion des documents :

6585/P019-2

### OECD CONFERENCE "CITIES AND THE NEW GLOBAL ECONOMY"

#### Objective:

To assist in researching/  
preparing/presenting a  
keynote address, and  
research/prepare draft paper.

#### Division:

International Relations  
Division

#### Contractor:

Michael Goldberg  
934 Gale Drive  
Delta, British Columbia  
V4M 2P5

#### CIDN:

1353 0900001

#### Central Registry:

4305-4-17

### PAYSAGES DE L'INTÉRIEUR DANS L'ÎLE DE MONTRÉAL

#### Objet :

Cette étude part de la prémisse que le paysage public montréalais a été principalement conçu à partir de courants de pensées externes certains étant bien connus, identifiés et documentés, mais que par contre on ne sait presque rien sur le sens qu'accordent des Montréalais à leur paysage à travers leurs propres interventions et commandes paysagères.

#### Division :

Division de la recherche  
Programme de subventions  
de recherche

#### Contractant :

Madame Daniele Routaboule  
École d'Architecture de  
Paysage  
Université de Montréal  
5620, rue Darlington  
Montréal (Québec)  
H3C 3J7

#### NIC :

1284 0200001

#### Numéro de la gestion des documents :

6585-R039-1

### POST-SYMPOSIUM REPORT - NEW VISIONS IN URBAN TRANSPORTATION

#### Objective:

To support the preparation of the post symposium report for new visions in urban transportation, as generated in a symposium convened by the Federation of Canadian Municipalities, Canadian Institute of Planners and the Transportation Association of Canada.

#### Division:

Research Division  
Centre for Future Studies in  
Housing and Living  
Environments

#### Contractor:

Transportation Association  
of Canada  
2323 St. Laurent Boulevard  
Ottawa, Ontario  
K1G 4K6

#### CIDN:

1308 0200001

#### Central Registry:

6855-2



### COMBUSTION VENT CLEARANCES.

*Prepared by Scanada Consultants Limited with Underwriters' Laboratories of Canada Inc. Prepared for Research Division, Canada Mortgage and Housing Corporation, Ottawa: CMHC, 1994.*

This study explores two cases of combustion flue clearances. In the first case, temperatures in an attic chimney clearance space were investigated. Seven different tests were conducted that showed temperature effects on the wood joists in the clearance space. In four of the seven tests conducted, the temperatures of the combustibles in the joist space exceeded the maximum temperature rise of 65°C permitted in the CAN/ULC S629 Standard. The second case explored various insulation and infiltration levels in exterior B-vent chases. Field testing of exterior B-vent chases was carried out to determine typical air infiltration rates. The average ELA of the three chases tested was 341 cm<sup>2</sup>.

The FLUESIM v5.0 simulation program was used to model various flue configurations using field-measured air infiltration data. The computer simulations showed that the worst-case temperature rise in an insulated, tightly constructed, B-vent flue enclosure is about 9°C when the outside air is around 0°C.

### Ongoing Projects/Projets en cours

#### DEVELOPMENT OF EFFICIENCY IMPROVEMENT TIMELINESS FOR RESIDENTIAL VENTILATION EQUIPMENT

##### Objective:

To assemble information on residential mechanical ventilation equipment (fans, blowers, heat exchangers) to develop a consensus on how quickly the efficiency of these devices can and should be improved over the next decade.

##### Division:

Research Division

##### Contractor:

Buchan Lawton Parent Ltd.  
5370 Canotek Road  
Ottawa, Ontario  
K1J 8X7

##### CIDN:

1242 0200001

##### Central Registry:

6766-4

#### EASE AIR BARRIER SYSTEM

##### Objective:

To aid the APCHQ and NRCan in the construction and evaluation of the External Air Barrier System Element (EASE) Demonstration Project. An energy-efficient house was constructed using a new wall assembly which incorporates a structural air barrier that is permeable to water vapour. The air barrier allows excess humidity in the home to migrate through the walls without causing wall degradation. This project will evaluate the performance of this wall assembly for moisture migration and structural soundness.

##### Division:

Housing Innovation Division

##### Contractor:

Morrison Hershfield Ltd.  
2440 Don Reid Drive  
Ottawa, Ontario  
K1H 8P5

##### CIDN:

1044 0300002

##### Central Registry:

6796-17

#### ELECTRONIC SMOKE PENCIL

##### Objective:

The design and development of a battery operated electronic air leakage detection device.

##### Division:

Research Division  
Housing Technology  
Incentives Program

##### Contractor:

Sigmin Enterprises  
9 Milne Crescent  
Kanata, Ontario  
K2K 1H7

##### CIDN:

1269 0200001

##### Central Registry:

6521-28/93



### **HARMONIZATION OF VENTING TERMINOLOGY**

#### **Objective:**

To identify all Canadian and United States of America codes and standards that use venting terms, developing a set of harmonized terms and definitions used in venting codes and standards.

#### **Division:**

Research Division

#### **Contractor:**

Buchan Lawton Parent Ltd.  
5370 Canotek Road  
Ottawa, Ontario  
K1J 8X7

#### **CIDN:**

1078 0200001

#### **Central Registry:**

6718-15-1

### **PARE-AIR RIGIDE**

#### **Objet :**

Identifier les différents matériaux pouvant être utilisés pour la réalisation d'un pare-air en panneaux rigides en tenant compte de différents types d'application définis.

#### **Division :**

Division de la recherche

#### **Contractant :**

Mario V. Petrone  
200 - 2545, rue Delorimier  
Longueuil (Québec)  
J4K 3P7

#### **NIC :**

1280 0200001

#### **Numéro de la gestion des documents :**

6585/P057

### **PRESSURE MODERATED SCREENED WALL SYSTEMS**

#### **Objective:**

To study the mechanics involved and to attempt to quantify the number, nature and location of vents in the exterior screen of per walls for optimum ventilation drying and pressure moderation; to measure the extent and mechanism of ventilation drying in an idealized per wall; and to measure the extent and mechanism of pressure moderation in an idealized per wall.

#### **Division:**

Research Division

#### **Contractor:**

Eric F.P. Burnett  
University of Waterloo  
Waterloo, Ontario  
N2L 3G1

#### **CIDN:**

1273 0200001

#### **Central Registry:**

6585/B102

### **SCIENTIFIC RESEARCH AND DEVELOPMENT CONCERNING VENTILATION SYSTEMS FOR NEW AND EXISTING HOUSES WITH ELECTRIC BASEBOARD HEATING**

#### **Objective:**

To identify designs of simple ventilation air distribution systems that are suitable for new and existing houses that lack fully ducted forced-air heating systems.

#### **Division:**

Research Division

#### **Contractor:**

National Research Council  
Institute for Research in Construction  
Building M-20  
Ottawa, Ontario  
K1A 0R6

#### **CIDN:**

1124 0800001

#### **Central Registry:**

6725-18-1

## **VENTILATION CONTROL IN MEDIUM AIRTIGHTNESS HOUSES**

### **Objective:**

To monitor houses with mechanical ventilation controlled by sensing outdoor air temperature. Nitrogen oxide produced by combustion equipment will also be measured and compared to health guidelines.

### **Division:**

Research Division  
Panel on Energy R&D

### **Contractor:**

Saskatchewan Research  
Council  
Building Science Division  
15 Innovation Boulevard  
Saskatoon, Saskatchewan  
S7N 2X8

### **CIDN:**

1179 0800001  
1179 0200001

### **Central Registry:**

6716-17-1

## **VENTILATION RESEARCH REPORT**

### **Objective:**

To carry out support to ventilation standards research: the work shall include four houses.

### **Division:**

Research Division  
Panel on Energy R&D

### **Contractor:**

Everts-Lind Enterprises  
R.R.#3  
Bridgewater, Nova Scotia  
B4C 2W2

### **CIDN:**

0814 0801001

### **Central Registry:**

6730-5-7

## WATER CONSERVATION/EAU – CONSERVATION

### Ongoing Projects/Projets en cours

#### **HIGH FREQUENCY WATER SHUT OFF CONTROL**

##### **Objective:**

Develop a working prototype of the high frequency water shut off control unit.

##### **Division:**

Research Division  
Housing Technology  
Incentives Program

##### **Contractor:**

Victor J. Diduck  
755 Kyle Drive  
Kamloops, British Columbia  
V2B 7J5

##### **CIDN:**

1265 0200001

##### **Central Registry:**

6521-1893

#### **MEASUREMENT OF SPECTRAL TRANSMITTANCE OF REPRESENTATIVE GLAZING SAMPLES**

##### **Objective:**

To obtain the spectral transmittance data of a representative group of window glazings including two-pane and three-pane assemblies with and without low-emissivity coatings; to present the data in a manner that would allow comparisons of the spectral characteristics of the window assemblies.

##### **Division:**

Research Division

##### **Contractor:**

University of Calgary  
Centre for Livable  
Communities  
2500 University Drive N.W.  
Calgary, Alberta  
T2N 0G3

##### **CIDN:**

1214 1100004

##### **Central Registry:**

6717-18

#### **A SURVEY OF HEALTH EFFECTS OF LOW-E WINDOWS**

##### **Objective:**

To determine if there is any existing evidence of a possible health impact of low-e windows on people.

##### **Division:**

Research Division

##### **Contractor:**

Murray Waldman  
Suite 1200  
191 Lombard Avenue  
Winnipeg, Manitoba  
R3B 0X1

##### **CIDN:**

1214 1100002

##### **Central Registry:**

6717-18



### Ongoing Projects/Projets en cours

#### **ATLANTIC WOMEN AND HOUSING; ARE WE PREPARED FOR THE 21ST CENTURY? CONFERENCE JUNE 1994**

##### **Objective:**

The objectives of this conference were to produce innovative housing options which do not involve significant funding; to improve knowledge of and better utilization of existing housing resources; to sensitize government and other public agencies to the housing problems of women and families; to encourage and produce co-ordination and cooperation among organizations in the community interested in the housing problems of women. CMHC will receive a compendium of conference proceedings including summaries of research presentations and workshops conducted.

##### **Division:**

Strategic Planning and Policy  
Development Division

##### **Contractor:**

Habitation New Brunswick  
53 Alexander Avenue  
Moncton, New Brunswick  
E1E 1T3

##### **CIDN:**

1342 010000

##### **Central Registry:**

0226-1

#### **PAPER FOR OECD PROJECT - WOMEN IN THE CITY**

##### **Objective:**

To bring together a group of Canadian experts in a collaborative undertaking to consider OECD's conference proposal and produce a draft Canadian position paper on it.

##### **Division:**

International Relations  
Division

##### **Contractor:**

Carleton University  
1125 Colonel By Drive  
Dunton Tower, 15th Floor  
Ottawa, Ontario  
K1S 5B6

##### **CIDN:**

1075 0900002

##### **Central Registry:**

4305-4-14

## BIBLIOGRAPHIES/BIBLIOGRAPHIES

- Alternative mortgage instruments / Nouveaux modes de financement hypothécaire  
(Rev. 15 p., October/octobre 1984)
- Architecture in Canada / L'architecture du Canada  
(18 p., July/juillet 1983)
- Building and climatic factors / Construction et des éléments climatiques  
(7 p., November/novembre 1983)
- Building in cold climates / Construction dans les pays froids  
(Rev. 9 p., December/décembre 1989)
- Building laws / Législation de la construction  
(Rev. 25 p., October/octobre 1986)
- Building materials / Matériaux de construction  
(14 p., August/août 1987)
- Building product information / Information sur les produits pour le bâtiment  
(7 p., August/août 1984)
- Children in the urban environment / Les enfants dans le milieu urbain  
(23 p., January/janvier 1993)
- Computer-aided architectural design / Dessins architecturaux par ordinateur  
(Rev. 2 p., September/septembre 1984)
- Condominium conversion / Immeubles d'habitation - transformation en copropriétés  
(12 p., May/mai 1986)
- Condominiums / Copropriétés  
(Rev. 12 p., March/mars 1986)
- Congregate housing / Habitat collectif  
(10 p., November/novembre 1991)
- Construction industry in Canada / Industrie de la construction au Canada  
(Rev. 27 p., January/janvier 1988)
- Construction industry labour / Main-d'oeuvre de la construction  
(6 p., February/février 1988)
- Cooperative housing / Coopératives de logements  
(Rev. 40 p., September/septembre 1988)
- Crime prevention and architectural design / Design architectural et prévention de la criminalité  
(7 p., May/mai 1989)
- Crime prevention and urban safety in residential environments / La prévention du crime et la sécurité dans les milieux résidentiels urbains  
(12 p., September/septembre 1989)
- Deinstitutionalization  
(7 p., June/juin 1988)
- Desktop Publishing  
(3 p., March/mars 1988)
- Development rights transfer / Transfer de droits de développement  
(8 p., December/décembre 1985)

- Discrimination and segregation in housing in Canada / Bibliographie sur la discrimination et la ségrégation dans le logement au Canada  
(5 p., November/novembre 1991)
- Downtown redevelopment / Réaménagement de centres-villes  
(Rev. 26 p., January/janvier 1989)
- Energy conservation in multiple housing / Économie d'énergie dans les logements collectifs  
(Rev. 3 p., June/juin 1983)
- Examples of housing program evaluations / Exemples d'évaluations de programmes de logement  
(3 p., January/janvier 1982)
- Expandable housing / Les logements expansibles  
(October/octobre 1985)
- Experimental houses / Maisons expérimentales  
(6 p., January/janvier 1983)
- External Research Program Reports arranged by subject / Rapports du programme de recherche à l'extérieur par sujet  
(Rev. 31 p., October/octobre 1993)
- False Creek, Vancouver, British Columbia / False Creek, Vancouver, Colombie-Britannique  
(Rev. 4 p., November/novembre 1984)
- Federal/provincial relations and housing / Relations fédérales/provinciales et le logement  
(3 p., June/juin 1987)
- Foundations / Fondations  
(17 p., January/janvier 1989)
- Geodesic domes / Domes géodésiques  
(4 p., November/novembre 1983)
- Graduated payment mortgages / Prêts hypothécaires à paiements progressifs  
(Rev. 3 p., October/octobre 1991)
- Group homes / Foyers de groupe  
(Rev. 5 p., May/mai 1986)
- Halfway houses / Foyers de groupe  
(Rev. 5 p., May/mai 1986)
- Home care vs institutional care / Soins à domicile ou en établissement  
(3 p., April/avril 1982)
- Home equity conversion / Conversion de la valeur nette du logement  
(9 p., October/octobre 1988)
- Home ownership / La propriété d'un logement  
(Rev. 28 p., August/août 1987)
- Homelessness / Sans-logis  
(Rev. 8 p., July/juillet 1987)
- House designs - annotated / Modèles de maisons - annotée  
(12 p., June/juin 1984)
- Housing and AIDS / Hébergement des personnes atteintes du SIDA  
(5 p., September/septembre 1993)
- Housing and services for the disabled / Logement et les services pour les handicapés  
(Rev. 68 p., April/avril 1992)

- Housing and the elderly / Le logement et les personnes âgées  
(Rev. 78 p., September/septembre 1988)
- Housing conversion and residential intensification / Conversion d'habitations et intensification résidentielle  
(Rev. 8 p., October/octobre 1990)
- Housing costs / Prix des maisons  
(12 p., August/août 1985)
- Housing demand / La demande en logement  
(22 p., November/novembre 1986)
- Housing density / Densité d'habitation  
(7 p., September/septembre 1985)
- Housing for immigrants and minorities / Logement pour les groupes ethniques et immigrants  
(7 p., May/mai 1993)
- Housing for single parent families / Le logement et les familles monoparentales  
(Rev. 6 p., May/mai 1986)
- Housing for single people / Le logement et les personnes seules  
(3 p., September/septembre 1984)
- Housing in Canadian municipalities / Logement dans les municipalités canadiennes  
(Rev. 44 p., March/mars 1985)
- Housing in New Brunswick / Logement au Nouveau-Brunswick  
(7 p., March/mars 1987)
- Housing in Newfoundland / Logement à Terre-Neuve  
(6 p., March/mars 1987)
- Housing in Nova Scotia / Logement en Nouvelle-Écosse  
(11 p., May/mai 1987)
- Housing in Prince Edward Island / Logement dans l'Île-du-Prince-Édouard  
(4 p., April/avril 1987)
- Housing in the Atlantic Provinces / Logement dans la région de l'Atlantique  
(4 p., April/avril 1987)
- Housing in urban core areas / Logement dans les centres-villes  
(Rev. 13 p., January/janvier 1985)
- Housing management / Gestion des logements  
(Rev. 23 p., January/janvier 1989)
- Housing markets / Le marché du logement  
(Rev. 36 p., January/janvier 1988)
- Housing policy in Canada / Politique du logement au Canada  
(Rev. 45 p., January/janvier 1987)
- Housing quality / Qualité de logement  
(8 p., January/janvier 1988)
- Housing renovation / Restauration de quartiers résidentiels  
(Rev. 62 p., March/mars 1988)
- Housing stock / Stocks d'habitations  
(8 p., February/février 1987)



- Housing subsidies / Subventions au logement  
(Rev. 49 p., October/octobre 1990)
- Housing tenure / Status d'occupation des logements  
(4 p., March/mars 1982)
- Impact of inflation on house prices / Effets de l'inflation sur le prix des maisons  
(Rev. 4 p., August/août 1985)
- Indoor air pollution / Pollution de l'air des habitations  
(Rev. 29 p., July/juillet 1990)
- Infill housing / Logement résidentiel complémentaire  
(Rev. 8 p., March/mars 1990)
- Inner cities / Centres-villes  
(Rev. 9 p., January/janvier 1985)
- Insulation / Isolement  
(Rev. 33 p., November/novembre 1991)
- Intelligent buildings / Bâtiments intelligents  
(3 p., February/février 1987)
- Land banks and land trusts / Banques agraires et sociétés foncières  
(October/octobre 1990)
- Land use and energy conservation / Occupation du sol et l'économie d'énergie  
(Rev. 4 p., August/août 1983)
- LeBreton Flats / Les Plaines LeBreton  
(Rev. 9 p., April/avril 1986)
- Life cycle costing / Estimations du coût global  
(Rev. 9 p., November/novembre 1992)
- Lofts / Lofts  
(1 p., January/janvier 1983)
- Log structures / Constructions en pièce sur pièce  
(Rev. 8 p., April/avril 1989)
- Low cost affordable housing / Habitation à coût modique  
(Rev. 35 p., October/octobre 1989)
- Low energy housing / L'habitation à consommation réduite d'énergie  
(8 p., June/juin 1984)
- Manufactured housing / Habitation préfabriquée  
(Rev. 33 p., November/novembre 1986)
- Moisture problems in buildings / Humidité dans les constructions  
(Rev. 21 p., July/juillet 1990)
- Mortgage-backed securities / Titres hypothécaires  
(13 p., March/mars 1988)
- Mortgage insurance / L'assurance hypothécaire  
(11 p., April/avril 1988)
- Mortgages / Hypothèques  
(Rev. 21 p., August/août 1984)
- Municipal energy management / Gestion de l'énergie dans les municipalités  
(Rev. 10 p., September/septembre 1983)

- MURBs and RHOSPs / IRLMs et REELs  
(4 p., April/avril 1986)
- Native housing / Logement pour autochtones  
(20 p., January/janvier 1988)
- Neighbourhood improvement programs / Programme d'amélioration des quartiers  
(8 p., May/mai 1982)
- Neighbourhood preservation / Conservation du quartier  
(6 p., May/mai 1982)
- Noise / Le bruit  
(27 p., December/décembre 1991)
- Non-profit housing / Le logement à but non-lucratif  
(Rev. 19 p., October/octobre 1989)
- Playgrounds / Terrains de jeux  
(Rev. 30 p., December/décembre 1991)
- Post occupancy evaluation / Évaluation après occupation  
(13 p., February/février 1989)
- Privatisation of Public/Council Housing in Great Britain  
(6 p., June 1987)
- Program evaluation / L'évaluation de programme  
(Rev. 17 p., October/octobre 1986)
- Property tax / L'impôt sur la fortune  
(7 p., February/février 1985)
- Proposal writing / Rédaction de projets  
(5 p., August/août 1988)
- Public housing in Canada / Habitations à loyer modéré au Canada  
(Rev. 63 p., September/septembre 1991)
- Public/Private Partnerships / Association du secteur public et du secteur privé  
(12 p., December/décembre 1989)
- R-2000 bibliography / Bibliographie sur R-2000  
(7 p., September/septembre 1987)
- Radon and houses / Radon dans les habitations  
(Rev. 23 p., July/juillet 1990)
- Railway relocation / Déplacement de voie ferrée  
(6 p., October/octobre 1982)
- Real estate in Canada / Propriété immobilière au Canada  
(Rev. 37 p., September/septembre 1987)
- Real property appraisal / Évaluation de la propriété immobilière  
(12 p., April/avril 1984)
- Reinsurance / Réassurance  
(3 p., July/juillet 1987)
- Rent control / Contrôle des loyers  
(Rev. 20 p., August/août 1990)
- Rental housing / Logement locatif  
(53 p., October/octobre 1990)

- Research methods / Méthodes de recherche  
(6 p., December/décembre 1983)
- Residential development / Développement résidentiel  
(Rev. 57 p., July/juillet 1991)
- Residential displacement, relocation, and gentrification / Relogement, relocalisation, et embourgeoisement  
(19 p., September/septembre 1988)
- Residential energy conservation / Économies d'énergie dans l'habitation  
(19 p., June/juin 1983)
- Residential Rehabilitation Assistance Program / Programme d'aide à la remise en état des logements  
(8 p., February/février 1988)
- Resource communities / Villes d'exploitation de ressources  
(Rev. 15 p., March/mars 1988)
- Retirement and life care communities / Collectivités de retraités et communautés fournissant des soins à vie  
(Rev. 10 p., March/mars 1990)
- Rooming houses / Maisons d'hébergement  
(3 p., May/mai 1986)
- Rural housing / Logement rural  
(Rev. 18 p., March/mars 1988)
- Safety in the home / La sécurité au foyer  
(4 p., July/juillet 1988)
- Scholarship Program 1947 - 1993 / Programme des bourses d'étude 1947 - 1993  
(66 p., May/mai 1994)
- Secondary mortgage markets / Marchés hypothécaires secondaires  
(6 p., August/août 1982)
- Self-help housing / Autoconstruction  
(Rev. 13 p., January/janvier 1989)
- Shared appreciation mortgages / Prêts hypothécaires avec participation à la plus-value  
(Rev. 2 p., October/octobre 1984)
- Shared housing / Logement à contrepartie de travaux  
(Rev. 11 p., October/octobre 1991)
- Small apartment design / Conception de petits appartements  
(2 p., October/octobre 1985)
- Small houses / Les petites maisons  
(5 p., October/octobre 1986)
- Smart house / Maison automate  
(Rev. 12 p., December/décembre 1990)
- Solar access rights / Droit au soleil  
(Rev. 8 p., October/octobre 1992)
- Solar heating / Chauffage solaire  
(Rev. 16 p., October/octobre 1992)
- Solar houses / Maisons solaires  
(Rev. 22 p., October/octobre 1992)

- Stackwall house construction / Construction de maisons de "bois cordé"  
(Rev. 1 p., September/septembre 1983)
- Strategic planning / Planification stratégique  
(8 p., September/septembre 1986)
- Straw bale housing / Maisons de ballots de paille et mortier  
(4 p., July/juillet 1994)
- Student housing / Logement pour les étudiants  
(Rev. 6 p., July/juillet 1989)
- Suburbs / Banlieues  
(Rev. 9 p., September/septembre 1983)
- Technology transfer and the construction industry / Transfert de la technologie dans le secteur de la construction  
(8 p., December/décembre 1986)
- Temporary shelter for battered women / L'hébergement temporaire pour les femmes victimes de violence  
(Rev. 11 p., May/mai 1991)
- Underground housing / Maisons souterraines  
(Rev. 5 p., March/mars 1985)
- Urban planning in Canada / Urbanisme au Canada  
(25 p., November/novembre 1982)
- User participation in housing design for the elderly / Participation des usagers dans la conception de logements pour personnes âgées  
(Rev. 5 p., June/juin 1984)
- Vacation Homes / Chalets  
(29 p., November/novembre 1991)
- Variable-rate mortgages / Les prêts hypothécaires à taux variable  
(Rev. 9 p., October/octobre 1991)
- Ventilation / Ventilation  
(Rev. 26 p., September/septembre 1991)
- Warehouse conversions / Conversions d'entrepôts  
(4 p., September/septembre 1983)
- Waterfront areas and harbours / Fronts de mers et les ports  
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